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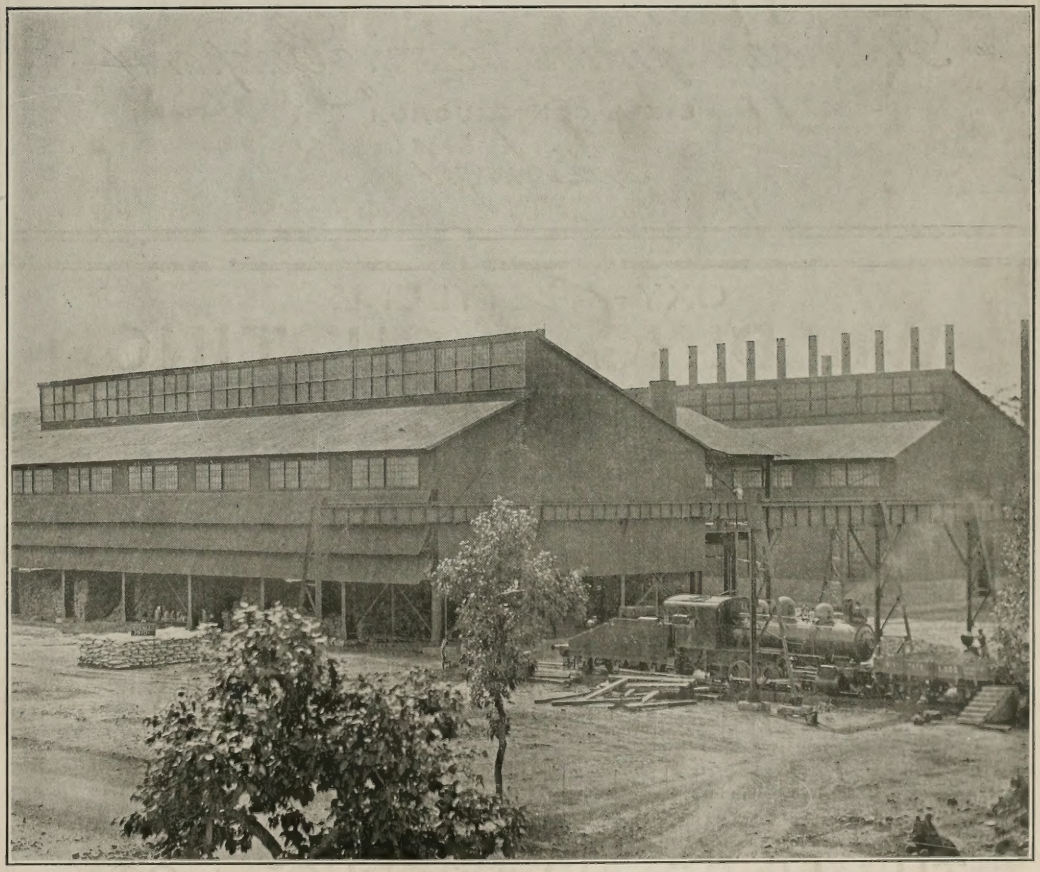
INDUSTRIAL WORLD

Published Weekly in the Interest of Iron, Steel, Coke and Allied Industries.

46th Year. No. 5. PITTSBURGH, PA. MONDAY, JANUARY 29, 1912

Tata Iron and Steel Company's Plant at Kalimati, India, Designed and Built by Pittsburghers.



View from corner of plant showing foundry building in the foreground; machine shop in the rear; stacks of steel mill show in distance.

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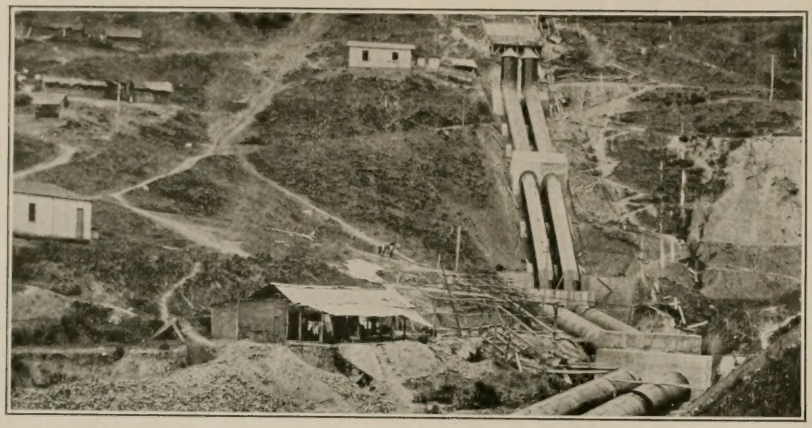


Riter-Conley Manufacturing Company

STEEL CONSTRUCTION

Pittsburgh

1

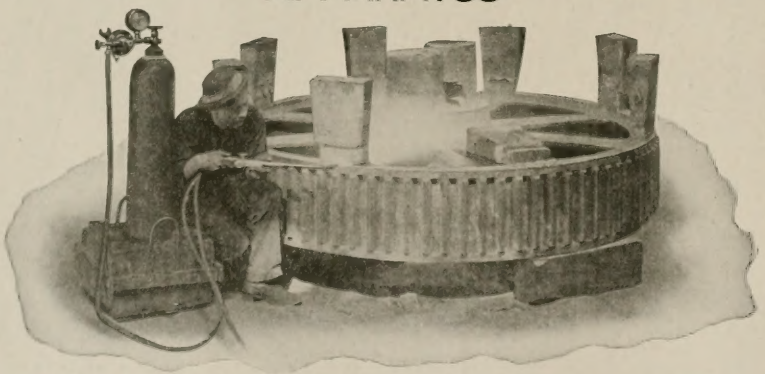
OXY-ACETYLENE

WELDING & CUTTING

APPARATUS

EFFICIENT

ECONOMICAL



SIMPLE

RELIABLE

Cutting risers from machine moulded gear at the Works of the Mesta Machine Company. These Risers which measured 4 in. x 8 in. were removed with the "UNIVERSAL CUTTER" in 1½ minutes each.

THE LINDE AIR PRODUCTS CO.

Head Office and Works: BUFFALO, N. Y.

INDUSTRIAL WORLD

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FORTY-SIXTH YEAR. PITTSBURGH, PA., JAN. 29, 1912. NUMBER FIVE.

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Summary of General Iron and Steel Markets

PIG IRON.—Sales of Bessemer and basic iron from Valley furnaces during the week showed slightly depressed levels from the "paper market" of the past month, though in truth there has been quiet selling for some time at a shade under $14.25 Valleys for Bessemer and $12.50 Valleys for basic. Sale of basic at $13.15, delivered Cleveland, developed actual basis for reports of basic tonnages to be had at $12.25 Valley furnace. Eastern market is quiet with inclination toward shading except at Buffalo, where prices continue firm. Chicago reports sane price levels. Dubious feeling in South, where deliveries have failed to reduce stocks and producers may curtail output during February.

RAILS.—Pennsylvania System's order for 150,000 tons of rails duplicates last year's order. Erie's rail order, 26,000 tons, averages a heavier rail than last year's. Lackawanna orders 23,000 tons. Rail mills will show good outputs for January.

CRUDE STEEL.—Carnegie Company is taking no additional contracts for billets and sheet bars. Some offers of premiums in this district, though further west the Pittsburgh base of $20 for billets and $21 for crude bars is discounted 50 cents to $1.

WIRE.—Expected advance of $1 a ton in wire and wire products, in effect last Monday, is general with Corporation and principal independents. New price is $1.40 for plain wire, $1.60 for nails.

PLATES, SHAPES. — Demand for structural tonnage has fallen off materially, though mills are more heavily booked ahead than they have been in a year. Plate market firm at 1.15c for prompt.

SHEETS, TIN PLATE.—Reports of price recessions in sheets not generally confirmed. Two or three mills will sell sheets $1 a ton under recognized price, making $1.85 on black and $2.85 on galvanized, but the majority of sheet mills adhere to regular prices. Some additional capacity on. Tin plate producers nicely filled for first quarter.

COKE.—Output for week ending January 20 passed the 400,000-ton mark in Connellsville field, breaking 18 months' record. Higher price levels hold, with $1.90 minimum for furnace coke, prompt or on contract.

Points on the Market

Rail Orders for 1912.—Including the Pennsylvania's rail order of 150,000 tons, orders for standard rails placed during January call for a total of 496,000 tons, and all rail mills are working at increased capacity, though this will not continue if the volume of other business shows any material increase. In the first three months of 1911 rail orders totalled 650,000 tons, the business placed over the remainder of the year bringing the year's business to approximately 3,000,000 tons. All the heavier Eastern buyers of rails have placed their winter tonnages.

Transmission Towers. — Orders for transmission towers for high tension electric line totalling large tonnage have been placed by Eastern interests with Riter-Conley Manufacturing Company. Company's Leetsdale (Pa.) plant went on double turn last Monday, bookings assuring operations at that rate to June.

Iron Pipe Demand.—Demand for iron pipe improves and prices have stiffened. U. S. Cast Iron Pipe & Foundry Company has put on more capacity. Reading company is said to be negotiating for old Longmead mills, Conshohocken, Pa., long idle.

Furnace Resumptions.—Clinton furnace of the Clinton Iron & Steel Company, Pittsburgh, which banked January 12, resumed January 24. The Carnegie Steel Company's Sharon, Pa., stack was lighted January 23.

Light Rails Active.—Mine improvements and extensions have caused a revival in demand for light rails. Carnegie Steel Company booked about 2,800 tons.

Canadian Bounty.—Canadian government is understood to have agreed to regranting of bounty of 90 cents a ton on pig iron, to be payable from July 1 next.

Increase Car Output.—As result of recent steel car orders, American Car & Foundry Company last week increased its Berwick (Pa.) plant to full time.

Tube Plant Resumes.—Plate department of National Tube Company, at Wheeling, W. Va., resumed last Monday after idleness of two months.

Rails for Export.—Birmingham mills are shipping rails on an export order from Japan.

SHEET MILL INTERESTS OF CANTON DISTRICT MAY IMITATE MAHONING VALLEY MERGER.

COMPANIES CENTERING IN STARK COUNTY, O., FIGURING ON COMBINATION, WITH AN OPEN HEARTH STEEL PLANT TO FURNISH CRUDE STEEL — DETAILS OF BRIER HILL MERGER AT YOUNGSTOWN BEING WORKED OUT.

Reports have been partially confirmed that a merger of Canton and Massillon (O.) sheet steel plants is being worked out, following somewhat the lines of the merger of the Brier Hill, Youngstown Steel, Thomas and Empire interests in the Mahoning Valley district at Youngstown, announced 10 days ago.

Concerns in Canton district who have been approached on the subject of the merger include the Stark Rolling Mill Company (the Berger interests), with 18 hot mills; the Massillon Rolling Mill Company, with 9 hot mills; the United Steel Company, Canton, 6 hot mills and the Carnahan Sheet & Tin Plate Company, Canton, 8 hot mills—the combined independent capacity of the district being 41 hot mills.

The Canton project contemplates the installation of an open hearth steel plant to supply the crude steel to the groups of finishing mills. Merchant blast furnaces within easy reach of that territory, with low freights for pig iron into Canton, would make such a project feasible. For some months the Berger interests have had an open hearth project in view, but it is only recently the plan has been evolved of interesting the various independent companies in the enterprise.

"Brier Hill" Organization.

The newly merged Brier Hill Steel Company, at Youngstown, O., which is to build an open hearth plant near that place to supply steel to the finishing mills in the combination, took out an Ohio charter on January 19, with $15,000,000 authorized capitalization, the charter stating the company's purpose to be "to mine ores, coal and limestone and to manufacture iron, steel and other metals."

The capital stock is divided into 150,000 shares of $100 each and is all common stock. The incorporators of the company are: H. H. Stambaugh, John Tod, E. L. Ford, R. C. Steese, John Stambaugh, David Tod, Joseph G. Butler Jr., and W. A. Thomas.

The company will formally organize at a meeting to be held to-day (January 29) at Youngstown. The officers will be:

President—W. A. Thomas.
Vice President—J. G. Butler, Jr.
Vice President and General Manager—R. C. Steese.
Treasurer—John Stambaugh.
Secretary—J. E. Parker.
General Manager of Sales—J. D. Waddell.
Purchasing Agent—Claude R. Thomas.
Auditor—C. H. Rose.
Advisory Board.—E. L. Ford, John Tod, David Tod, and H. A. Stambaugh.

It is currently reported at Youngstown that Joseph A. McDonald, who resigned the superintendency of the Ohio plant of the Carnegie Steel Company, at Youngstown, 10 days ago, will be general superintendent of the new operation. Of the officers mentioned above, Messrs. Butler, Tod, Steese, Ford and Stambaugh, are connected with the two blast furnace interests in the merger, the Brier Hill Iron Company and the Youngstown Company; Mr. Parker, the secretary, was formerly of the Brier Hill Company; the Messrs. Thomas and Mr. Rose were with the Thomas Steel Company.

Mr. Thomas has been president and general manager of the Thomas Steel Company of Niles, which will furnish a large part of the finishing capacity for the new corporation. Mr. Butler has been general manager of the Brier Hill Iron & Coal Company for many years. Mr. Steese has been secretary and treasurer of the Brier Hill Iron & Coal Company; Mr. Stambaugh has been secretary and treasurer of the Youngstown Steel Company, and Mr. Ford general manager of the same company.

The new company will open offices in the Stambaugh building, Youngstown, February 1, ready to do business.

Empire Sheet Mills Included.

It was announced last week that the Empire Iron & Steel Company had entered the merger.

The Empire Iron & Steel Company is formed of a consolidation of the Garry Iron Company, formerly of Cleveland, with the old Empire company, controlled formerly by Jonathan Warner. Both companies retain their identity, but most of the stock has been issued and the concern is doing business in the name of the Empire Iron & Steel Company. It had been reported and then denied that these interests, controlled by Colonel George D. Wick, of Youngstown, would become part of the consolidation. The consolidation of the Garry and Empire companies with the merger will greatly add to its strength. The holdings of these companies have been estimated to be worth $1,000,000. They have a large finishing mill capacity at Niles. The Garry Iron & Steel Company, was brought to Youngstown district two years ago by Colonel Wick, from Cleveland. It was the original intention to locate at Crab Creek, near Youngstown, but later a deal was perfected whereby the Empire mills at Niles were purchased from Jonathan Warner and his associates, and as the result the Garry company located at Niles.

The Empire Company has six sheet mills, one black plate mill, one skelp mill, a small puddle mill, three-pot galvanizing plant and an extensive roofing, spouting and stamping works.

To date, no announcement has been made as to the possible entrance of the DeForrest Sheet & Tin Plate Company, of Niles, into the merger, though such action is predicted.

Tentative plans of the newly-merged management are for 12 open hearth furnaces, although the first unit put in operation will probably be of a smaller number. These will be located at Brier Hill, Mahoning county, O., adjoining the Brier Hill furnace.

Fighting Casing-Head Gasoline.

In his annual report to the governor of Ohio, State Oil Inspector William L. Finley calls attention to "the new process used in the manufacture of gasoline which produces a highly volatile liquid, which is extremely dangerous." The report asserts that this product is produced in small quantities by different operators throughout the oil and gas fields, who seem ignorant of the fact that the product should be inspected. The inspector asks that his department be authorized to devise a bright and attractive stamp which every package of this product must bear before it is offered for sale. An explosion of this substance very seriously burned one of the deputies in the department last November and a bystander was killed outright, the report adds.

Ohio Natural Gas Association.

Programs and invitations will be issued shortly for the annual meeting of the Ohio Natural Gas Association, which will be held at the Chittenden hotel, Columbus, O., February 6. All of the natural gas companies of the State will be represented. The association is a year old. J. M. Garard, of Columbus, vice president and general manager of the Ohio Fuel Supply Company, is president and T. C. Jones, of Delaware, manager of the Delaware Gas Company, is secretary.

EQUIPMENT NEWS OF THE DISTRICT.

Addition to Cold Roll Department.

Follansbee Brothers Company, Pittsburgh, have placed an order with the National Roll & Foundry Company, Farmers Bank building, Pittsburgh, for an additional cold mill, to be installed complete in its tin plate works at Follansbee, W. Va.

Officials of the National Roll & Foundry Company report the booking of a largely-increased tonnage in rolls for sheet and tin plate mills since the first of the year, indicating a noticeable improvement in operation in that line of production.

Remodeling Blast Furnace.

The Globe Iron Company, Jackson, Ohio, is having its blast furnace stack and hot blast stoves remodeled and has arranged for the installation of a skip hoist. The company has contracted with the Otis Elevator Company, Pittsburgh, for the installation of an automatic engine to operate the hoist. When improvements have been completed the stack will have a capacity of 300 tons.

Equipment for Aluminum Plants.

Plans are being prepared by the Aluminum Company of America for improvements to its plant at New Kensington, to cost $100,000, which will include an addition to the smelter plant and the construction of two additional furnaces, an addition to the machine shop and the installation of additional equipment. The company is spending a similar amount on extensions to its works at St. Louis, and has placed orders with the Petroleum Iron Works, Sharon, Pa., for filter presses and tanks, and with the T. Shriver Company, of Brooklyn, N. Y., for stokers.

Sheet and Tin Plate Extensions.

The DeForest Sheet & Tin Plate Company, Niles, Ohio, has awarded a contract to the McClintic-Marshall Construction Company, Pittsburgh, for extensions to its plant. Improvements contemplated by the company will cost approximately $100,000, and will include four additional hot mills, a new galvanizing plant and an aluminizing plant. The present galvanizing plant will be used for a roofing and pressed steel department. A steam turbine-driven generator of 1,000-horsepower capacity and other equipment will be installed.

Illinois Manufacturers' Association party, to visit Panama, left Chicago January 20.

Innovation in Mill Controllers.

The Youngstown Sheet & Tube Company is understood to have placed a contract with the Electric Controller & Manufacturing Company, of Cleveland for 91 controllers of the magnetic switch type, for motors of from 5 to 80-horsepower. The substitution of the magnetic switch controller for manual control on the smaller motors is an innovation in steel mill practice in this section. The controller design has several new features. It was tried out under operating conditions recently at several plants in Pittsburgh district.

Turbine and Condenser Apparatus.

The Ohio Valley Electric Railway Co., a subsidiary of the American Railway Co., has contracted with the Wheeling Engineering & Condenser Company, Wheeling, for the installation of condensing apparatus in its power plant at Kenova, W. Va., to include a rectangular jet condenser for a 1,500 k. w. and a 2,000 k. w. steam turbine, a rotary dry air vacuum pump and a 100 horsepower centrifugal tail pump. The order for the turbines has been placed with the Terry Turbine Company, with offices in the Oliver building, Pittsburgh.

Rope Drive Installation.

The West Penn Steel Company, at Brackenridge, Pa., has specifications completed for a rope drive installation in connection with the improvements under way at the Brackenridge plant. Additional crane installations also are being made. A part of the power equipment for the Brackenridge extension is to be supplied by the Mesta Machine Company.

Large Motor for Mill Work.

It is understood specifications are being drawn for a motor of 800 to 1,000-horsepower for installation in connection with improvements at the plant of the Seamless Tube Company of America, at Monessen, Pa. Contracts for supplementary equipment on this installation have yet to be closed. A part of the new work is being placed with the Cutler-Hammer Company.

American Engineering Co. Agents.

In mentioning the consolidation of the several companies forming the American Engineering Company, Philadelphia, the INDUSTRIAL WORLD stated last week that the company is represented in Pittsburgh by D. D. Pendleton, with offices in the Oliver building. Mr. Pendleton requests that a correction be made, as he represents but one department, the stoker department. C. E. Forsythe, manufacturer's agent, with offices in the Keenan building, represents the hoisting engine department.

Laying Rails on New Lines.

Contractor J. J. Houghton, Pittsburgh, who is building the Duquesne & Dravosburg Street railway, a four-mile line connecting the two boroughs named, has commenced laying rails for the line. It is the intention of the officials of the company to have the road completed and in operation early in the spring.

Order for Pipe Fittings.

The Board of Control of the city of Youngstown, O., has awarded the contract for 2,500 corporation cocks for the waterworks department to the A. P. Smith Manufacturing Company of East Orange, N. J.

Orders for Pump Equipment.

The plant of Boyts, Porter & Company, of Connellsville, Pa., manufacturers of pumping equipment and mine fittings, is said to be filled with orders for four months, having the largest amount of forward business on its books since 1907.

Pneumatic Tool Extension.

The Chicago Pneumatic Tool Company is building an extension to its Cleveland works, which will largely increase the capacity of the plant.

To Develop Gas Project.

The Schenck-Philadelphia Natural Gas Company, 1123 Market street, Wheeling, took out a West Virginia charter last week with a capitalization of $1,500,000. The principal offices are to be in Wheeling and the chief works in Warwood and Richland districts of Ohio county, W .Va. The incorporators are Albert F. Schenck, Charles J. Schenck, George P. Fohnar, Willis H. Marshall and Allard L. Doepken, all of Wheeling. The company has plans for storing natural gas.

Pipe for Philadelphia Company.

The Philadelphia Company, (of Pittsburgh), has placed an order with independent pipe makers of Pittsburgh district for eight miles of line pipe. The order amounts to about 1,000 tons.

Bed-Spring Order from Turkey.

An order for a shipment of bed-springs from A. G. Raymondi, of Constantinople, Turkey, was received by the Triumph Bed Spring Company of New Castle, Pa., last week. Charles Glasser, the president, and A. G. Zahnizer, the man-

ager of the company, had some difficulty getting the order deciphered. The company has no agencies in Mediterranean territory and has done no advertising abroad.

Good Work by Turbine Pumps.

A water famine was started at St. Louis, during the recent cold weather by the installation of DeLaval steam turbine driven centrifugal pumps. For several days slush ice had been interfering with the operation of the triple expansion direct-acting pumps formerly used until the water supply was about exhausted. The Dravo-Doyle Company, Pittsburgh was working on the installation of two centrifugal pumps of 50,000,000 gallons capacity per day each. One of the pumps was put in operation on January 9, and as the ice did not interfere with its operation the water supply was normal in a few days.

The Dravo-Doyle Company is installing two 5,000,000 gallon motor driven centrifugal pumps for the American Pipe & Construction Company, Philadelphia; a 200-horsepower, turbine drive, boiler feed pump, to care for 16,000 horsepower boiler capacity, a 75 horsepower turbine driven centrifugal pump of 4,500,000 capacity, and a 100-horsepower motor driven centrifugal pump of 500,000 gallons capacity for the Consolidated gas, Electric Light & Power Company, Baltimore.

Secures Prize at Southern Fair.

At the recent international fair held at San Antonio, Tex., the Peden Iron & Steel Company, of San Antonio, with the Stark Rolling Mill Company, of Canton, O., secured first premium for their display of Toncan metal.

Sanitary Plant Resumes.

The enameling plant of the American Sanitary Company, at Elm Grove, near Wheeling, W. Va., resumed operations in full January 22. The foundry has been closed for several weeks, during which time minor repairs were made.

Government Filing Cases.

The Berger Manufacturing Company, of Canton, Ohio, has been awarded contract for steel filing cases for the government building in Kansas City, Mo., at $3,127.

Reported Extension Denied.

The report that the Pittsburgh Bolt & Rivet Company contemplates the erection of a Canadian plant at Wellane, Ont., is officially denied by officers of that corporation.

Demonstrates Oxy-Acetylene.

Representatives of oxy-acetylene Interests, which cut the tangled steel work of the Cincinnati Chamber of Commerce building following the fire of a year ago, gave a demonstration of oxy-acetylene cutting and welding before the Cincinnati Engineers' Club, last week.

MOTOR CAR WORKS.

Krupp Company Negotiating for Site in the Beaver Valley.

Projectors of the Krupp Motors Car Company were in Beaver Falls last week inspecting the abandoned Keystone Axle Works as a site for its proposed plant. The site contains about eight acres of level land fronting on the line of the Pennsylvania Lines West, with a siding which connects the Pennsylvania and Pittsburgh & Lake Erie lines. The ground is underlaid with Beaver Valley sand stone, which is near the surface and will make an excellent foundation for the heaviest machinery. Fred N. Beagle, B. B. Todd, H. W. Reeves and other members of the Beaver Falls board of trade are taking an active interest in having the works located at that place.

The Krupp company has opened offices in the Jenkins Arcade building, Pittsburgh, which are in charge of D. Morgan, president and general manager of the company. Mr. Morgan announces it is the intention of the company to instal automatic machine tools, and have it in operation as early as possible. Electric drive will be used exclusively for motive power.

Irvin & Witherow, engineers, Keystone building, Pittsburgh, are preparing plans for the group of buildings which will be of reinforced concrete construction. The machine shop and assembly room will be 85x300 feet, two stories; administration building 85x85 feet, five stories; general assembly and paint shop 85x300 feet, two stories; shipping department 85x200 feet, two stories; storage and warehouse 85x200 feet, two stories. Concrete foundations, steel window frames and sash, reinforced concrete and composition roofing will be used, and an exhaust steam heating system will be installed.

Plans will be ready for bids about February 23. The plant will be used for the manufacture of automobile parts.

Other sites under consideration include one at Koppel, Pa., near Beaver Falls, and another at Rachester, Pa.

Moving B. & O. Bridge.

The new steel bridge for the Baltimore & Ohio Railroad Company at Gaston Junction, W. Va., was moved to its place on the old piers last week. The work was directed by H. G. Reynolds, engineer for the American Bridge Company. It required but 3½ minutes to move the bridge. The span weighs 1,200 tons and is 610 feet in length.

CORPORATION ELECTIONS.

Spang, Chalfant & Company, Inc., Pittsburgh.—Directors: C. H. Spang, D. E. Park, Henry Chalfant, D. B. McClelland and A. M. Bell. Officers: Henry Chalfant, president; D. B. McClelland, vice president and treasurer; A. M. Bell, secretary, and George Matheson, Jr., assistant to treasurer and general manager of works.

Crane Company, Chicago. — Charles R. Crane has been elected president to succeeding J. S. Thomas, resigned; vice Crane. R. T. Crane, Jr., was made first vice president, and R. T. Crane, III., second vice president.

Hamilton Otto Coke Company, Hamilton, O.—President, S. M. Goodman, succeeding J. S. Thoms, resigned; vice president, F. L. Garrison, and W. A. Everson, secretary and treasurer.

Scullin-Gallagher Iron & Steel Company, St. Louis. — Directors: James Campbell, Festus J. Wade, David R. Francis, John Scullin, Harry Scullin, Frank Perry, S. S. Knight, Charles L. Gilbert and V. C. Turner.

Falcon Bronze Company, Youngstown, O. — G. A. Doeright, president and general manager; John Noll, vice president; J. G. Haney, secretary; E. E. Miller, treasurer; R. H. Doeright, superintendent. Officers, with C. H. Kennedy, form board of directors.

Wagner Electric, St. Louis.—Directors:- S. M. Dodd, W. K. Bixby, Thomas H. West, J. W. Bell, A. Blair, J. Campbell and W. A. Lyman. Officers: S. M. Dodd, chairman of board; W. A. Layman, president and general manager; J. W. Bell, vice president, Albert Blair, secretary; W. S. Thomas, treasurer; M. S. Allcorn and W. S. Thomas, assistant secretaries, and Walter Robbins, assistant general manager.

Ludlow-Saylor Wire Company, St. Louis.—Directors: William Duncan, G. Duncan, F. Low, E. J. Gould, Duncan Meier, H. M. Meier, Leslie Dana and Charles L. Dean. Officers: William Duncan, president; G. Duncan, F. Low and E. J. Gould, vice presidents; Duncan Meier, secretary.

John O'Brien Boiler Works Company, St. Louis.—Directors: J. S. Leahy, M. A. O'Brien, James A. McKeown and R. C. O'Brien. Officers: James A. McKeown, president and treasurer; R. C. O'Brien, vice president; M. A. O'Brien, secretary and treasurer.

Pennsy shops at Altoona, Pa., have gone on full time, 55 hours a week.

MANUFACTURERS AND CONTRACTORS' CLUB OF PITTSBURGH HOLDS SECOND ANNUAL BANQUET.

MAKERS of material, architects and builders, in about equal ratio, formed the guest list at the second annual banquet of the Manufacturers and Contractors' Club, of Pittsburgh, at the Ft. Pitt hotel, on the evening of January 23. The attendance exceeded the expectations of the committee, members and guests present numbering over 300. The Manufacturers and Contractors' Club meets on Tuesday noons at its rooms in the Lewis building, and is an altogether informal organization, whose avowed purpose is to smooth the way in dealings between manufacturers, architects, contractors, sub-contractors and the man whom all are endeavoring to serve.

Scott A. White, president of the club, called the gathering to order last Tuesday night, and introduced D. L. Gillespie as toastmaster. Toasts were responded to by George H. Danforth, of the Jones & Laughlin Steel Company, secretary of the club; City Solicitor C. A. O'Brien, C. P. Hill, of the Doubleday-Hill Electric Company; Architect Edward Stotz, Assemblyman Clyde M. Kelly, President John M. Goehring, of the city council, and Allen T. Burns. W. A. Donkin, secretary of the Pittsburgh Industrial Commission, responded informally.

The speaking program, though long, held the attention of the banqueters. The addresses were interspersed with songs by the Manufacturers and Contractors' Club quartette, led by John A. Strouss, vice president of the club.

Appeal for Co-Operation.

The keynote of the evening was sounded by Secretary Danforth, who reviewed the efforts of the club during the past two years to eliminate cut-throat competition, which, the speaker declared, was the bane of the building trades in Pittsburgh district.

"The country has tried consolidation as a cure for selfishness in great business undertakings," said the speaker, "but that has not altogether accomplished the desired end. Co-operation has its good points, but co-operation has to be applied with skill. The dividing line between co-operation and conspiracy is mighty narrow. But by combining co-operation with good fellowship, we get somewhere. This is the essence of our proposed cure—it is expressed in the two words, 'Get together.' Get the habit of getting together. Our club is endeavoring to point the way."

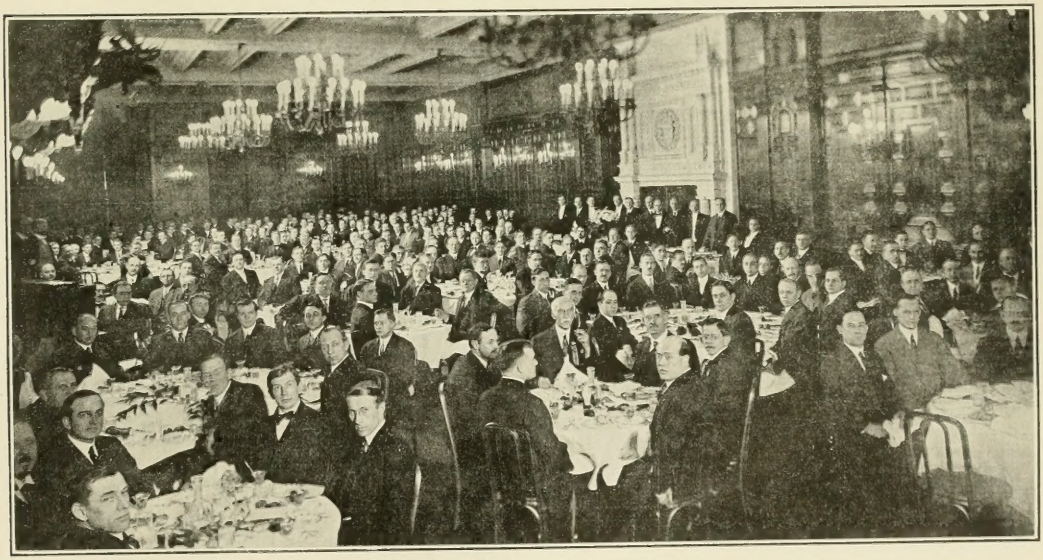
C. A. O'Brien reviewed the efforts at economical administration of the city's affairs under the Magee regime, and then Secretary Donkin, of the Industrial Development Commission, was invited to tell why "Pittsburgh Promotes Progress." Mr. Donkin explained the policy of the commission with reference to new industrial enterprises, and bespoke for his body the support of the business interests of the city. He closed with the assertion:

"I dont believe the greatest fortune to be made in Pittsburgh has yet been made; I don't believe the greatest invention to go out of Pittsburgh has yet been heralded to the world; I don't believe the greatest philanthropist to be created by Pittsburgh has yet been revealed."

Building and "Model Homes."

C. P. Hill, of the Doubleday-Hill Company, spoke on the problems confronting the housing commission in the matter of desirable sites for workingmen's homes in Pittsburgh district. Pittsburgh's rental level was compared with that of other cities, and the workingmen's homes ideas as worked out in Germany, England and cities of America were detailed. He urged renewed study of the low-priced home question by architects, builders and investors.

Architect Edward Stotz in an address on "The Triangle—Owner, Architect and Contractor," took up the question of uniform building contracts, and urged co-operation. Hon. Clyde M. Kelly also echoed Secretary Danforth's Keynote of "Get Together," in a wholesouled talk on "Good Fellowship in Business." President of Councils Goehring and Secretary Burns, of the Civic



Scene at Second Annual Banquet of the Manufacturers and Contractors' Club of Pittsburgh.

Commission, occupied their alloted time with the discussion of municipal and civil questions. Mayor Magee, announced as one of the speakers, was unable to be present on account of illness.

The function did not adjourn until well past 11 o'clock; and even that hour was not too late to listen to another of Toastmaster Gillespie's carefully selected stories. The banquet committee was composed of Harry Kennedy, R. O. Belles, T. S. Morgan and S. A. McRoberts.

"NESTED" STEEL BARGES.

Project of a West Virginia Man.

The War Department at Washington has under consideration the construction of several coal barges to test an invention of Howard Atkinson, of St. Albans, W. Va., son of former Governor George W. Atkinson, of West Virginia. Mr. Atkinson's plan consists of the construction of barges of different sizes to nest one within the other so they may be brought back to the mines after the coal has been taken from them at smaller expense than under the present method. After the coal is taken out he would have the largest barge sunk, the one next in size floated over it and then sunk, the one next in size floated over it and then sunk and so on until perhaps a half dozen barges might be brought back from the coal markets in the space of one.

No test has ever been made of the plan, but it is the impression of many rivermen that it would be entirely feasible. The inventor has asked the war department to have barges constructed after his plan as a test. The matter has been referred to a committee of three engineers consisting of Col. H. C. Newcomer, United States engineer at Pittsburgh; Col. Beach, United States engineer at New Orleans, and the United States engineer at St. Louis.

General W. H. Bixby, chief of United States engineers, has promised a report on the matter before long.

New Trolley Line Chartered.

The Poland Street Railway Company, Youngstown, O., was granted an Ohio charter last week; capital $125,000. The incorporators are E. Mason Wick, Paul H. McElvey, W. Edgar Leedy, A. H. Rice and J. W. Blackburn, of Youngstown. The company, backed by the Realty Security Company, of Youngstown, recently secured a franchise from the village of Poland, O., for a trolley line to Youngstown.

New York State canal tonnage, 1911, was 3,097,068 tons, an increase of 23,000 tons.

THE DEATH RECORD

George Schuyler Davis.

George Schuyler Davis died in Cleveland, Ohio, on January 24. He was well known in electric railway circles by reason of his connection with various electric railway publications, being at the time of his death editor of "Electric Traction Weekly," of Chicago, Ill. Mr. Davis was born in Wellington, O., August 28, 1875. In 1894 he entered the employ of the "Cycling Gazette," of Cleveland. Later he became associated with several automobile papers. He soon became regular editorial representative of the "Street Railway Journal" in the Middle West. In 1907 he became financially interested in "Electric Traction Weekly."

H. Frisbe, Machinery Manufacturer.

H. Frisbie, formerly a machinery manufacturer of Cincinnati, died on his farm near Gallipolis, O., January 18. Mr. Frisbie was the inventor of the Frisbie valve on steamboats.

William Wilkes Young, Union Switch & Signal.

William Wilkes Young, aged 54, one of the oldest employes of the Union Switch & Signal Company in point of Service, died at his home at Edgewood, Allegheny county, Pa., January 22. From foreman in the New York plant Mr. Young rose to purchasing agent of the Swissvale plant. At different times he acted as agent of the company at Cleveland, St. Louis and Boston.

Henry F. Lofland, American Bridge Co.

Henry Fiddeman Lofland, 47 years old, general manager of erection and Director of the American Bridge Company, died at his home in Milford, Del., on January 13, of tuberculosis.

Mr. Fofland had been with the American Bridge Company since its organization in 1900. He graduated from the University of Virginia as civil engineer and was an engineering authority.

Several weeks ago his mother died in Milford. This probably hastened his death. Because of his illness he had been resting for a year. He was unmarried.

Controversy Over Plow Patent.

At Cincinnati last week, the courts handed down an opinion deciding in favor of the plaintiff in the suit of William E. Reynolds, of Chattanooga, against the Ironton (O.) Disc Plow Company. The suit involves royalty payments, which Reynolds alleged the defendant owed him for the use of patents which he claimed to own. Edward Fowler invented a disc plow, and assigned the patents he secured on it to T. B. Simmons. Simmons conveyed the patent to Reynolds. Reynolds interested a number of capitalists of Ironton, Ohio, in the plow, and they organized a company to manufacture it, entering into a contract with Reynolds for the right to the patents on a royalty basis, he to receive $1.50 for each single plow manufactured and sold and $2 for each double plow. This he had to divide among those who had previously owned the patents. He charged in his bill of complaint, filed November 21, 1906, that either through fraud or error, the attorney who drew up the contract, who is attorney for the defendant corporation, made it so defective and vague that the defendant has been contesting the payment of royalties. At the time the bill was filed, it alleged, over 4,000 plows had been manufactured and sold. He prayed that the defendant be ordered to pay him the royalties due, and that the contract be revised to correct the defects, and to be made more definite, and to include the rights to certain patented improvements made by Fowler since the organization of the company. The court, in his opinion, grants the prayer of the petition.

To Shut Out American Nails.

There is an exceedingly vigorous competition in New Zealand between English, Canadian and American nails, with the United States subjected to the serious handicap of the 1-shilling surtax, says a consular report. Previous to 1904, when the preferential surtax went into effect. American exporters found a market in the Dominion for about twice as many nails as did the English manufacturers, and Canadian nails were not then sold.

The statistics of 1903 show that the United States that year shipped to New Zealand 39,753 hundredweight of nails valued at $100,796, while English manufacturers sold 17,817 hundredweight valued at $51,831. In 1910, however, the United Kingdom sold 34,126 hundredweight valued at $130,724, the United States 36,588 hundredweight valued at $94,847, and Canada 29,000 hundredweight valued at $70,994.

One circumstance that helps American makers is that their nails come in wooden kegs and can be more conveniently stacked than English nails arriving in iron kegs. The use of nails in New Zealand are very important, especially in connection with boxes for the Dominion's large export trade in butter.

The new automobile tags for Minneapolis are of aluminum, in which the black lettering is sunk. Under the new law these tags will be good until the end of 1914, instead of for only one year.

REVIEWS

PIPE FITTINGS.—The Best Manufacturing Company, Pittsburgh, with works at Oakmont, Pa., has issued catalog No. 103, a hand-book of piping materials for steam, air and hydraulic high pressure piping systems, including valves, fittings, flanges, pipe, pipe bends and separators made from all suitable materials.

The catalog is intended for use by purchasing and mechanical departments and it has been arranged with the idea of making it as convenient for rapid and accurate use as possible.

All material shown is manufactured by the company with the exception of a few lines of screwed materials and a few items which have been shown in order to obviate the necessity of reference to other specialty catalogs. The book contains the new universal list for iron body gate valves as adopted by the manufacturers, November, 1911.

A view of the company's new plant at Oakmont is set forth on the frontispiece, showing 12 acres of land covered with modern factory buildings and 20 acres available for expansion as business conditions require. The stock of wrought pipe and steel flanges, ranging from ¼-inch to 30-inch, permits filling rush specifications from stock without delay. Special work, including valves and fittings up to 120 inches in diameter and general iron castings up to 50-ton are furnished promptly. Sections of the catalog devoted to standard sections, extra heavy sections and dimensions, have been emphasized by thumb cuts to facilitate its use. The advantages of standardization are set forth, and much general information on engineering is presented.

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TWIST DRILLS.—The Cleveland Twist Drill Company has issued a folder embodying a cleverly designed piece of publicity—being facsimile reproductions, done in colors, of the simultaneous publications by some 20 trade papers, last July, of the extraordinary drilling records made on a test of twist drills. The whole is artistically arranged.

Heating With 3-Pound Steam vs. 30-Pound.

There are probably thousands of plants to-day that are unable to secure steam circulation with live steam at from 25 to 30 pounds pressure, while there are many more that are securing satisfactory results with a few pounds pressure. Examples of what is being done by modern steam heating contractors are continually presented. Recently a large paper mill complained that they could not secure proper circulation of steam with 25 to 30 pounds pressure, the radiation being from steel coils. This plant grew in four directions, and as each building was added a pipe would be run up, while the mains were not increased in size. The size of the structure was increased from four to five times by the extensions, and it took hours for the building to heat up. The steam heating contractor, without changing the piping at all, secured satisfactory steam circulation with three pounds pressure by putting in Webster siphon valves. The entire expense being only about $200. With the previous system a closed receiver with pump was used. It would almost seem that the benefits of heating with low pressure steam should by this time be known to all, but cases that occur like the above indicate that they are not by any means.—Walter B. Snow, Boston.

Solidification of Iron Castings in the Mold.

Before the London branch of the British Foundrymen's Association, on December 8, an illustrated lecture on "The Solidification of an Iron Casting in the Mould," was delivered by Professor Thomas Turner, M.Sc., A.R.S.M., FIC. Professor Turner, after remarking on the variations in the shrinkage experience with the different grades of iron, the shrinkage being greatest with a white iron and least with an open grade such as No. 1, defined the term "Solidification," which for practical work implied the cooling of the metal to the point at which it was stable enough to remove from the mould. At the conclusion of the lecture Professor Turner is reported by London "Engineering" as giving, among other information, the following as a suitable composition for general foundry work:

Graphite carbon	2.7
Combined carbon.....	0.35
Silicon	1.5
Phosphorus	0.7
Sulphur	0.08
Manganese	0.5 to 0.6 or 0.7

For increased hardness the silicon should be reduced, and for softness it should be increased, according to Professor Turner.

Chairman Gary and Steel Foundries.

Referring to his recent resignation from the board of directors of the American Steel Foundries, Chairman Gary, of the United States Steel Corporation says: "I have not disposed of any stock and am now a holder of a large amount. I have confidence in the company and in its management. I understand its business is increasing and its prospects are very good. I resigned from the board not because of dissatisfaction, but for personal reasons."

PERSONAL

Joseph A. McDonald, superintendent of the Ohio Works plant of the Carnegie Steel Company, at Youngstown, O., tendered his resignation to the Carnegie management on January 18, and it was accepted, to take effect immediately. It is announced that he will be succeeded by James H. Grose, Jr., present superintendent of the Howard Axle works and Schoen car wheel plant of the Carnegie Company, Pittsburgh. Mr. Grose takes charge in his new position to-day. No statement is authorized as to the future plans of Mr. McDonald. It is reported that he will take the superintendency of the proposed open hearth steel plant to be built by the newly organized Brier Hill Steel Company, in Youngstown district. Mr. McDonald had been identified with the Ohio plant in Youngstown ever since it was first built by the Ohio Steel Company, in 1893. He first became interested in the steel business in 1882. At that time he was employed as a blower at the Edgar Thompson plant at Braddock. Later he went to the Riverside plant at Benwood, W. Va., now a holding of the National Tube Company; then to Bellaire, O., to the plant now operated at that place by the Carnegie Company, leaving Bellaire to go to Youngstown in 1893. It had been announced that the Carnegie Company's projected merchant mills at Girard, O., would be named the "McDonald Mills" in his honor. Mr. Grose, who succeeds Mr. McDonald, was born in Cornwall, Eng., and was first employed in this country at the Morse Bridge works, in Youngstown. In 1887 Mr. Grose went to Homestead, Pa., and secured employment at the Carnegie mills. Starting as a journeyman he advanced to the superintendency of the Howard Axle and Schoen Car Wheel plants. Mr. Grose is 45 years of age.

V V

George E. Lees, formerly advertising manager of the American Vanadium Company, Pittsburgh, has severed his connection with the company to accept a position with the Fuller & Smith Company, Cleveland, O.

V V

C. E. Forsythe, manufacturer's agent, Pittsburgh, has moved his office to rooms 1310-11 Keenan building. He has taken the account of the Cockburn Company, New York, manufacturer of concrete mixers, automatic buckets, grout mixers and ejectors, for Western Pennsylvania, Ohio and West Virginia.

V V

A petition by the property owners and citizens of South Sharon, Pa., to change the name of that borough from South

Sharon to "Farrell," in honor of President James A. Farrell, of the Steel Corporation, has been approved by the Lawrence county grand jury and the town will be officially re-christened shortly.

V V

The Railway Steel Spring Company announces the appointment of F. J. Foley, for some years the manager of sales for that concern in the Eastern territory, to the position of general superintendent, with headquarters at 30 Church street, New York. Mr. Foley will be succeeded by D. W. Anderson, who has been identified with the Railway Steel Spring Company's Pittsburgh interests for many years.

INDUSTRIAL FIRES.

Syracuse, N. Y. — Main plant of Globe Malleable Iron Works destroyed January 23; loss $350,000. Loss includes a large amount of patterns in use, though pattern storage house was saved.

* * *

New York. — Seven-story warehouse of the Terminal Storage Company, occupying a full city block near the North river front, between Twenty-seventh and Twenty-eighth streets, partially destroyed January 17. Estimated loss $1,250,000.

* * *

South Bethlehem, Pa. — Plants of Austin Knitting Company and Progressive Silk Company, completely destroyed January 16; loss $70,000.

* * *

Charleston, W. Va.—Warehouse of Flat Top Ice & Cold Storage Company, North Fork, McDowell county, destroyed January 22. Loss $60,000.

"Machine Tools" and Lathes.—In sustaining a protest filed by the Georgia Pulp & Paper Company, the board of general customs appraisers at New York last week, decided that the term "machine tool," is not restricted to machines used exclusively in the working of metals, but may be applied as well to wood-working appliances. The machines in controversy are barking or rossing machines used in cutting or stripping the bark from pulp wood. Duty was assessed at 45 per cent for "manufactures of metal," while the importers alleged a tax of 30 per cent as being "machine tools."

It appears that the wood-working machines are power-driven appliances for working on wood with cutting tools. The government contended that it established by the record that the term "machine tool" is used in trade to refer only to such machines as are used in the working of metal.

MONTH'S DEVELOPMENTS EPITOMIZED IN EMPLOYERS' LIABILITY LEGISLATION.

The Industrial World here epitomizes some of the principal developments of the month of January in the matter of employers' liability legislation.

The Supreme Court Ruling.—On January 15, at Washington, the Supreme Court of the United States, in an opinion by Justice Van Devanter, upheld the constitutionality of the federal employers' liability act of 1908 in four cases before it on appeals in actions against New York, New Haven & Hartford Railroad Company and the Northern Pacific Railroad Company. The feature was the reversal of an opinion of the Court of Appeals for the State of Connecticut, which held that an action to recover under the law could not be brought in a State court. This the court held to be in error and reversed, and remanded the case for trial.

Ohio Law Upheld.—Ohio opponents of the State-administered employers' liability insurance fund bill were disappointed, through the handing down of an opinion by the State Supreme court sustaining the constitutionality of the act. The law was introduced in the legislature last year and was passed after it had had little attention from employers of labor, who have been paying the liability insurance companies in the neighborhood of $750,000 annually in employers' liability premiums. Those employers whose attention was called to the matter rather favored it because they thought they saw a method to bring about closer relations with the labor interests.

When the bill was signed by the governor, a test case was brought and some of the largest employers of the State awakened to the opinion that the act was revolutionary and intervened with a brief. They represented to the court that the law was discriminatory, abridged the legal rights of workmen and was unconstitutional because it provided that the State was to go into a private business.

Up to January 25 a large number of Ohio firms had made inquiries of the State Liability Board of Awards under the compensation act, and are said to have signified their intention of conforming to its requirements. Among them are the Baldwin Company, the Laidlaw-Dunn-Gordon Company and the Tool Steel Gear & Pinion Company, all of Cincinnati. It is announced that varying conditions of employment will make no difference in the application of the rates of premiums fixed by the State Liability Board of Awards under the compensation act. This is the substance of an opinion by Attorney-General Hogan, who stated that the premiums named for a definite class will apply to each and every employer and employee in the class.

It has developed that coal mines probably will not contribute to the State insurance fund. Letters indicating the position of the mine operators have been received by the State authorities. Neither is it expected that railroads will come under the law, inasmuch as they expect to be protected under the national compensation act.

The rates are expected to be given out in full by February 15. Blank forms of application to each one of the 13,000 employers of the State are being mailed out.

West Virginia Commission.—An Employers' Liability Commission appointed at the recent session of the West Virginia legislature to draft an employers' liability law and report at the next session of the legislature, met last week at the State capitol at Charleston. The commission is composed of legislators, business men and representatives of labor. The members are Senator A. C. McIntire, of Berkeley Springs, chairman; Dr. P. D. Reynolds, of Morgantown, secretary; Isaac T. Mann, Bramwell; T. E. Houston, Elkhorn; M. T. Davis, Charleston; C. W. Brockunier, Wheeling; Ben Davis, Montgomery; William F. Welch, Wheeling; L. V. Barton, Wheeling; State Senator James W. Flynn, Kingwood; Delegates John C. Dice of Lewisburg, G. W. McCauley of Moorefield and G. T. Epling of Huntington.

A compilation has been made of the laws of other States, and a bill will be formulated at this meeting.

"Optional Compensation" Bill for New York.—A member of the New York State legislature, John T. McDonough, of Rochester, former Secretary of State, has drafted a bill providing for workmen's compensation, which has been introduced into the legislature on behalf of the New York State Federation of Labor. The bill is modeled after the Ohio law.

This bill proposes to meet the constitutional bar which killed the mandatory compensation act in New York last year by making the application of compensation voluntary and optional on the part of the employer and employe. Provision

is made for the appointment of three commissioners of industrial accident insurance, giving them full power to organize an association of employers and employes and to establish rates of insurance for men engaged in manual and mechanical work.

It applies to the following employments, which are designated as hazardous: Railroads, shops, mills, factories, building, engineering, explosives, steam boilers, quarries, mines, tunnels, subways, caissons, foundries, steam heating plants, works in which explosives are used, elevators, bridge building, scaffolds and other like industries in which 10 or more persons are employed in manual or mechanical work. Following the Ohio compensation law, 90 per cent of the premium will be met by the employer and 10 per cent by the employe. The money is to be received by the State treasurer and disbursed by him solely as benefits, the State bearing all the expenses of administration. Mr. McDonough says that the premium will be less than one-half the amount paid the casualty companies on account of the fact that the State will bear the expenses of administration.

Employers who refuse to contribute to the fund will be deprived of the three common law defenses, and if the employe will not join, he will be confronted with these defenses. The injured party will receive two-thirds of his weekly wages, not exceeding $15 a week, if his salary is for life and totally disables him. Two-thirds the loss of wages will be paid during partial disability, not exceeding $15 a week, for not more than 20 years, but not to exceed $3,000. In case of death two-thirds the weekly wages shall be paid the widow weekly for 10 years, not exceeding $5,000.

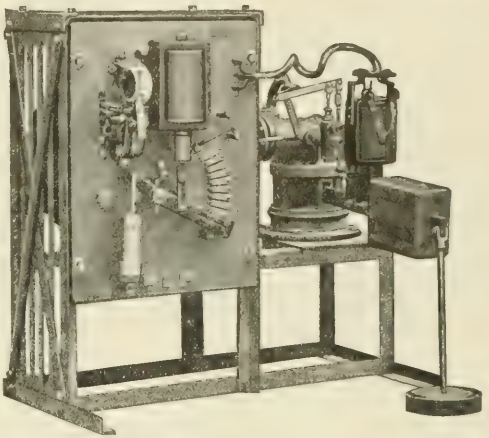
Agitation in Missouri.—A commission of citizens recently appointed by Governor Hadley, of Missouri, to investigate and report to the legislature on a practical plan of employers' liability legislation, is making up its report. In reviewing the investigation, E. M. Grossman, a member of the commission, said in an address last week at St. Louis that the commission favored the German plan of compulsory co-operative State-administered insurance, as advocated by F. C. Schwedtman, chairman of the committee on Employers' Liability of the National Association of Manufacturers.

Canadian Pig Iron Bounties.

The Canadian government is expected to present legislation the coming month restoring the 90-cent bounty on pig iron beginning July 1. Such bounty on the present total production of pig iron in Canada would amount to approximately $1,013,400 a year. It is difficult to figure exactly the output of the furnaces of each company in Canada, but as closely as possible the following would be the result:

	Annual Output Tons	Annual Bounty
Dominion Steel Corporation	360,000	$ 324,000
Nova Scotia Steel & Coal	90,000	81,000
Algoma Steel	345,000	310,500
Steel Co. of Canada (Hamilton)	191,000	171,900
Canada Iron Corp.	91,000	81,900
Deseronto	20,000	18,000
Atikoken Iron Co.	29,000	26,100
Total	1,126,000	$1,013,400

ROCHESTER (N. Y.) INSTALLATION OF AUTOMATIC PRESSURE CONTROLLED MOTOR REGULATOR.



Automatic controller for pump on hydraulic electric system—New device manufactured by Cutler-Hammer Manufacturing Company.

WHERE hydraulic elevators are used it is necessary to maintain proper tank pressure, sufficient even at busy periods of the day to insure satisfactory service. A power customer of the Rochester Railway & Light Company was using an excessive amount of current for operating a motor driving a rotary screw pump used in connection with a hydraulic elevator. The outfit was not maintaining sufficient pressure during the rush hours of the day, was noisy in operation, besides having a low efficiency. The power engineers who recently had provided economical service to two other hydraulic elevator customers, made a careful investigation, with the result that this customer was able to cut down his cost of operation over 50 per cent and has better service in all respects.

A triplex pump, in this case, was substituted delivering 200 gallons per minute and was driven by a 13 horsepower, 220-volt motor. The controller, furnished by the Cutler-Hammer Manufacturing Company of Milwaukee, and illustrated herewith, regulates the motor automatically, so that when the elevator service is light, the pump is run at its slowest speed, but as the service grows heavier, the motor speed is increased automatically by the controller and more water is pumped to meet the demand. The Rochester company claims that by use of this controller a smaller motor can be used for driving the pump; that the maximum amount of power required to supply the service is less than if the pump were allowed to run at full speed until the maximum pressure were reached (this means a lower demand rate if current is brought from a central station); and that less energy per gallon pumped is consumed. The new type is developed for this installation.

BALDWIN COMPANY PLANT

To Be Built at Calumet, Ill.

The Baldwin Locomotive Works, of Philadelphia, last week announced that it has purchased 320 acres of land at Calumet, Ill., near Indiana Harbor and in close proximity to 20 Chicago trunk and belt lines, upon which it will immediately begin the erection of the first unit of its Western plant, turning out 10 finished modern locomotives per week, the other units, two in number, to be erected soon after, the plant having a capacity of 30 locomotives per week, employing 15,000 men.

SOME MOTOR-DRIVEN ELECTRIC TOOLS: VALUE OF PORTABLE EQUIPMENT IN SHOPS.

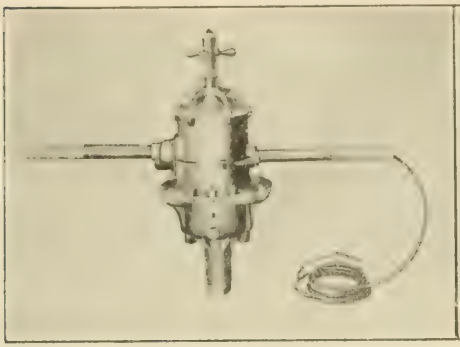


Figure 1.

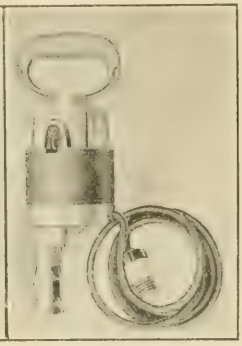


Figure 2.

ECONOMIES claimed for the use of portable electric tools for performing minor machine processes, such as drilling, milling, grinding and boring, are being made the basis for an active campaign by Westinghouse interests on behalf of motor-driven equipment. Several makes and types of electric tools are obtainable which for lightness of weight, simplicity of construction, and efficient operation, are declared

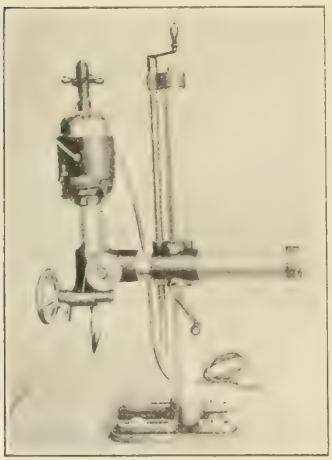


Figure 3.

to be exceptionally fitted for this class of service.

These tools are made of a size and weight which permit them to be readily held or moved by the workman or used as auxiliary attachments on larger tools. Their field of usefulness is being broadened every day. In machine shops, repair shops, garages, wood-working shops, carriage and wagon factories—in fact, wherever machine work is required on a small scale—portable tools are found extremely useful; by their aid work formerly requiring much time and labor to perform is quickly and easily done. They have been found of daily use, also, to engineers and janitors in office buildings, hotels, apartment houses, public buildings, etc., where trifling repair jobs are continually turning up. The use of these tools is not confined to the machine and repair shops, but they can be used with economy and satisfaction wherever electricity is available for lighting. The driving power is obtained simply by connecting to an incandescent lamp socket.

Worth of the Portable Tool

Some of the advantages in using these tools are, first the ease with which power can be transmitted electrically and turned into work at the exact point required, and second, the simplicity of the tools themselves and the facility with which they can be handled.

Every mechanic is becoming familiar with the use of portable electric tools, for a job is rarely completed without one of them being brought into action.

It often happens that a machine in various stages of completion, is too heavy or cumbersome to be carried to a stationary tool for small operations like drilling, grinding and boring. It is then that the portable tool demonstrates its worth. Even when it is possible to move a heavy casting with the aid of the crane to a drill-press or boring-mill, the time spent in "hooking-on," moving and "lining-up" the casting on the machine, far exceeds that of performing the simple operation on the spot with a portable tool.

In the large manufacturing plants, under scientific management, where every minute is counted, these facts have been known and acted on for some time.

The up-to-date manager or superintendent does not consider his equipment complete without a number of these little labor saving tools. They are just as important, in his eyes, as the ever present hammer or wrench. These economic features are also true of the small shops and they should be just as carefully considered if factory costs would be minimized.

Slight Current Consumption.

The current consumption for operating these tools is insignificant when compared with the saving in labor effected by their use. In fact after making a liberal allowance for cost of power, interest on cost of tools and depreciation in their value, the actual saving in workman's time, where very much work of this nature is done, will still show a handsome margin of profit favoring the tools.

All the motors shown in the accom-

Figure 4.

panying illustrations are of Westinghouse make with special mechanical features adapting them in each case to the tool.

The Illustrations.

Fig. 1 shows a portable electric drill equipped with screw feed; these drills

can be used as drill presses by providing suitable clamping devices.

Fig. 2 shows a small hand drill weighing about nine pounds complete and capable of drilling holes up to ¼-inch in diameter. This tool is especially serviceable for drilling name plate holes, lagging pin holes, oil holes, small bolt holes, etc.

Fig. 3 shows a radial drill light enough to be carried by two men and capable of working at any angle. It is made in two sizes weighing 145 to 165 pounds respectively, and is capable of drilling holes up to ⅞-inch and 1¼ inches in diameter. This tool will perform a wide range of work lying between the ordinary hand or breast drill and the larger stationary machine tool.

Portable electric surface grinders for smoothing up castings are made in several sizes, weighing from approximately 20 to 132 pounds, and requiring motors of from ¼ to 2 housepower. Different grades of emery and buffing wheels can be used, thus permitting a wide range of finishes. Only the larger grinders are suspended by coiled springs from the ceiling and used as indicated in Fig. 4, while the smaller sizes can be held in the hands.

The Westinghouse electric motors are excellently adapted for use with electric drills. The Westinghouse Electric & Manufacturing Company for many years has made a careful study of the application of electric motors for this class of service. The tools here shown are built by the United States Electric Tool Company, Cincinnati.

New fireclay and limestone deposits have been found by experts at Glasgow, Ky. Limestone analyzes large fertilizer content.

Try a Want or For Sale ad in the INDUSTRIAL WORLD.

MAKING STEEL THIS MONTH AT NEW PLANT OF TATA IRON & STEEL COMPANY, SAKCHI, INDIA.

[See Illustration on Front Cover.]

MEMBERS of the staff in the engineering offices of Julian Kennedy, Pittsburgh, are expecting to hear within a few days of the making of the first steel at the newly completed plant of the Tata Iron & Steel Company, at Sakchi, near Kalimati, Bengal, India, the first modern steel plant in that part of the Orient.

The first pig iron was made in one of the two 150-ton blast furnaces at the plant on December 1, and the news of the successful operation of the stack reached Mr. Kennedy by cable the following day. It is expected the first open hearth steel will be made this month, but the news has not yet reached Pittsburgh. It takes about a month to get mail from Bengal to Pittsburgh.

The plant of the Tata Company was designed and built by Julian Kennedy, Pittsburgh. It was described in the INDUSTRIAL WORLD of the early part of last year. The company is composed of native men, and native labor is used almost exclusively. The great problem to be worked out, according to steel mill authorities familiar with operation conditions in the tropics, is whether the plant can run to advantage during the heated term, with its complement of native laborers. There is a tacit understanding between the East Indian government and the projectors of the enterprise by which a certain annual tonnage of rails for government use is assured to the plant. Many detail problems are to be worked out, however, since all the materials are practically untried, the plant being limited to one grade of ore (though this is very rich and obtained only 40 miles away), and one grade of coal for coking. The plant consists of two 150-ton closed-top blast furnaces with four hot blast stores each; a 300-ton mixer, four 40-ton open hearth steel furnaces, soaking pits, rail finishing plant, rail mill, blooming mill, boiler plant, electric power house and two supply pumps at the Subarnarekha river two miles away. These pumps are operated from the power house, and large filter beds supply pure water both for the works and the town of 8,000 inhabitants, which has been built at the works.

Kalimati is on the Bengal Magpur Railway, 155 miles from Calcutta. The town about the works has been named Sakchi. The name originally designed for the town was "Sanchi," which has a local significance; but a government clerk substituted a "k" for an "n," the government red tape was complied with and "Sakchi" it is. W. B. Renkin, who had charge of the building of the plant, has recently returned to Pittsburgh, after having spent four years on the ground.

General view of Tata Iron & Steel Works, looking north. [See illustration on front cover.]

Pittsburgh Coal Tonnage, 1911.

The past season's coal traffic out of Pittsburgh waters down the Ohio was the largest in three years. A total of 2,554,000 tons passed the Davis Island dam, compared with 1,660,000 tons in 1910, and with 2,461,000 tons in 1909. The total freight tonnage passing out, including all kinds of materials and manufactures, was 3,784,000 tons ending with November, compared with 2,953,000 tons in 1910 and 3,722,000 tons in 1909. About two-thirds of the tonnage was down-river freight and the other third up-river business.

ERECTING LOCK MACHINERY AT PANAMA CANAL.

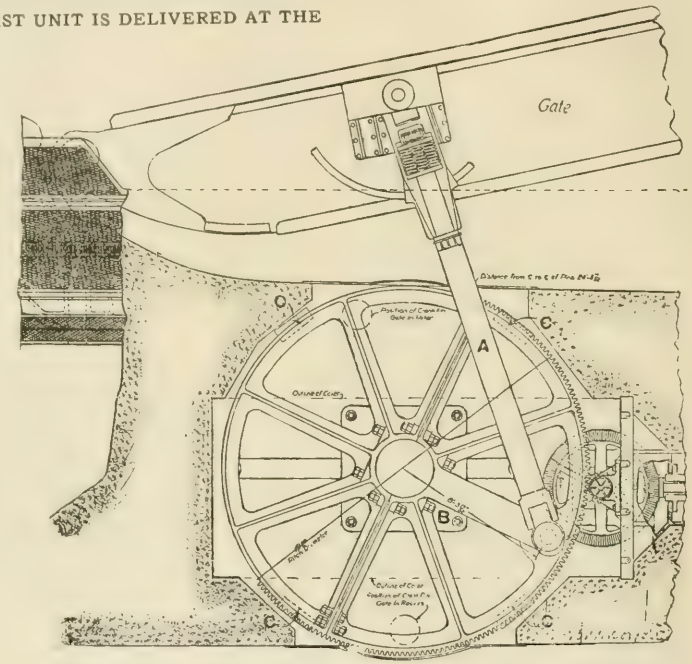
INSTALLATION OF GATE OPERATING MECHANISM BEGINS AT THE GATUN LOCKS—BULL WHEEL AND MACHINERY BUILT BY WHEELING COMPANY—FIRST UNIT IS DELIVERED AT THE ISTHMUS.

IT IS announced in the current issue of the Panama "Canal Record" that the first of the machines for operating the miter gates in the locks at Gatun has been received at that point and the work of erecting it at upper guard gate No. 38, in the middle wall of the east upper lock at Gatun, is advancing. A description of the mechanism for opening and closing the lock gates was published in the INDUSTRIAL WORLD of May 15, 1911 (Page 583).

The part that is being erected at present is the crank gear or large wheel shown in the illustration (A) herewith, and the machinery by which motion is transmitted from the motor to the wheel. The wheel and machinery are made by the Wheeling Mold & Foundry Company, the William Todd Company sub-contractors for the machine work; but the motors are purchased under a separate contract, to be made with the manufacturer that supplies the best motors, as determined by the tests now in progress at Gatun.

In operating, the wheel turns through an arc of 197 degrees, giving to the strut or connecting rod the movement of an arm in opening or closing a door, and the gate is opened or closed by this pull or thrust. The wheel is mounted upon a center plate, embedded in the lock wall and anchored into it by 12 bolts, 11 feet long and 2¼ inches in diameter. This plate is of cast steel 6½ feet square and weighs 13,200 pounds. It must be placed with great nicety because upon it depends the relation of the wheel to the gate, and the joining of the two by the connecting rod or strut.

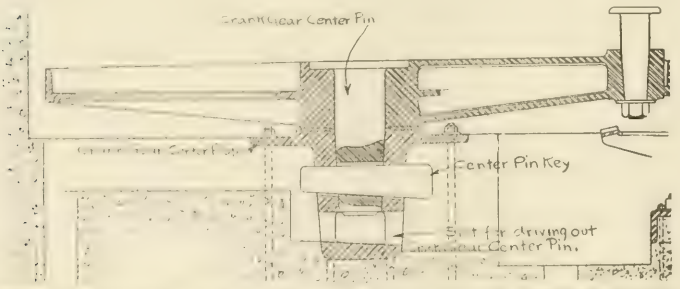
The wheel itself is 19 feet 2 inches in diameter and is constructed of cast steel in two sections. The section containing the pin to hold the strut is heavier than the other, the weights being respectively 19,500 and 15,800 pounds. The wheel bears upon the center plate and upon four bearing wheels mounted in the wall and supporting the bull wheel at its rim, as indicated (C) in the drawing (A) herewith. It is then fixed to the plate by a steel forged center pin, 4 feet 8 inches long, 18 inches in diameter, and weighing 4,090 pounds. This pin contains a slot near the bottom which, when the pin is in place, is opposite similar slots in the center plate. A steel pin key is driven through the slots, thus holding the center pin firmly in place in the bed plate. Below the key slots in the center plate is a similar slot into which the bottom of the center pin projects slightly. The pin key driven through this slot will loosen the center pin enough so that it may be removed without special effort. This key itself is 4 feet long, and one foot at greatest width.



(A.) LOCK GATE OPERATING MACHINE SHOWING RELATION OF BULL WHEEL TO STRUT AND GATE. (A) STRUT OR CONNECTING ROD. (B) BED PLATE. (C) BEARING WHEEL.

A cross-section of the bull wheel and its setting is shown in sketch (B).

All the parts for the gate moving machine are being handled into place by locomotive crane. One of these machines will be required for gate leaf or 92 in all.



(B.) SECTION THROUGH CENTER OF BULL WHEEL, SHOWING METHOD OF ANCHORING BED PLATE SETTING WHEEL.

The exports of coal and coke from northern China last year to the United States mark the first time this trade has been attempted. Trial shipments of Honan and Kaiping coal were made to Pacific ports, says a consular report, but they are reported not to have been particularly profitable on the heat unit test.

CASTING MONEL METAL IN AN EASTERN FOUNDRY

FOUNDRY interests in the East have long recognized that monel metal, the "natural" alloy that consists of approximately 67 per cent nickel, 27 per cent copper, and 6 per cent of other metals, principally iron and manganese, would find a large demand for propeller use provided it could be cast successfully. On account of the relatively scant knowledge of nickel and its peculiarities considerable difficulty was experienced by foundries that first attempted to cast monel metal propellers, but all obstacles seem to have been overcome by the Bayonne Casting Company, Bayonne, N. J., who have successfully cast monel metal propellers of 18,000 pounds each, and, in fact, have made castings of 25,000 pounds weight in one piece. The foundry practice of the Bayonne Casting Company is described in a bulletin furnished by the Ruggles-Coles Engineering Company, of New York, who act as general sales agents for this company.

The practice of casting monel metal is very similar to that followed in many steel foundries. As the melting point is high, being about 2500 degrees F., eight hours are required for heating. The melting plant of the Bayonne Casting Company consists of standard reverberatory furnaces, which are oil fired, the fuel being fed by gravity and the melting being done by natural draft. The furnaces are charged with the metal in the form of pigs or slabs that weigh about 35 pounds each.

Furnace Capacity.

No fluxes or alloys are necessary. At present the melting capacity of the plant is about 40,000 pounds daily, consisting of one furnace with a capacity of 30,000 pounds, another of 7,500 pounds, and a third of 2,500 pounds. Included in the shop equipment are also several Rockwell furnaces of 200 pounds capacity each.

In casting the large propellers, pits are used that are 25 feet in diameter and 5 feet deep. These are built in the form of submerged steel tanks, with rolled plates. The adopting of this construction is due to the shifting nature of the ground on which the shop is located, due to its proximity to tide water, and further, the cost of construction was less than concrete. On the bottom of the base plate an ordinary loam mold for the casting is built up. Millville gravel from New Jersey deposits is used which is the same grade of sand used by the steel foundries in the vicinity. The heat of the molten metal when poured exceeds that of steel, and therefore an exceptionally good facing is required. The ramming of the mold is done by air rammers of the floor type, and after the mold is in position and dried the copes are bolted to the base plate and a runner box with four aperatures which feed directly into the mold is placed upon the copes and the head box inserted.

Tapped Into Large Ladle.

The feeding is performed quickly from a 30,000-pound ladle, into which the furnaces are tapped. This rapid pouring is necessary for the elimination of dross that otherwise might collect. The molten metal pours quite similarly to brass. The casting is allowed to set for four days in the mold before it is taken out.

A 20-ton electric traveling crane with a 5-ton auxiliary commands the operations. There are also two 7½-ton jib cranes which serve for handling the metal in about one-third of the entire shop.

Heretofore, propellers have been made largely of various kinds of bronze, particularly manganese bronze, but with the rapid development of the marine turbine the demand for a propeller metal that would stand even better the severe shock of high speed service became manifest. Monel metal has its strong advocates for this use. The Argentine republic's battleship "Rivadavia," claimed to be the largest and most powerful naval ship in the world, has three monel metal propellers each of 16,000 pounds, and three similar ones have been cast from the same republic's battleship "Moreno," now in construction at Camden. The U. S. battleship "Florida" is equipped with four 8,000-pound monel metal propellers, while the "North Dakota" is fitted with two of 18,000 pounds each Many torpedo boat destroyers of the United States Navy are fitted with monel metal propellers, most of them being of the three-blade design, weighing about 2,000 pounds each.

A recent inspection of the U. S. battleship "North Dakota" in dry dock, showed that the monel metal propellers used suffered little effect of their long service. The bright silver polish of monel metal propellers was well retained and the enormous strength of the material prevents changes of pitch and consequent losses of efficiency.

View of one end of Monel metal foundry of the Bayonne ,Casting Company Bayonne, N. J. The furnaces are shown at the left, and a mold is being dried in the pit in the foreground.

Manhattan Is Wasting Anthracite.

The danger of a future shortage in the world's coal supply was discussed last Tuesday at the annual meeting of the American Society of Heating and Ventilating Engineers at the Engineering Societies building, No. 29 West Thirty-ninth street, New York. R. P. Bolton, president of the society, announced that the ashes from the borough of Manhattan contain yearly 20 per cent of unconsumed carbon, representing a heating value of equivalent to 168,000 tons of coal, and a cost to the city of $774,000

"A general advance has taken place in 1911 in the price of anthracite coal," said Mr. Bolton. "These advances are indications of the gradual approach of the period of exhaustion. In no distant time the city of New York will be confronted with the dreaded infliction of a general dependence upon soft coal."

NEW IRON AND STEEL TARIFF BEFORE HOUSE; REDUCTIONS PROVIDED ARE 10 TO 50 PER CENT.

THE revised iron and steel tariff schedule, approved by the Democratic caucus on January 23, was introduced in the house last Wednesday (January 24), by Representative Underwood. It was referred to the ways and means committee which reported it favorably. Debate on the bill began Friday. It was made plain at a conference of the Republican leaders at the White House on January 24 that President Taft will veto any and all legislation for a revision of the tariff on steel which is not the result of tariff board findings.

Reductions of from 30 to 50 per cent on all items in the iron and steel schedule and the placing on the free list of iron ore, sewing machines, printing machinery, cash registers, nails and many other articles on which duties are now levied, are proposed in the bill. Mr. Underwood estimated that the bill would reduce the average tariff on steel imports from 34.51 per cent to 22.42 ad valorem, and would reduce the government tariff revenues from steel products by $823,597 from 1911 and by $4,000,000 from 1910. Imports of steel products, he estimated, would be increased by nearly $20,000,000.

Proposed Free List.

Among the articles now dutiable under the Payne-Aldrich bill which would be placed on the free list are the following:

Iron ore, existing duty 5.29 per cent; hoop and band iron and steel, 16 per cent; barbed wire and wire fencing, 30 per cent; nails, 17.67 per cent; horseshoes, 21 per cent; tungsten ore, 10 per cent; zinc ore, 36.57 per cent; cash registers, linotype machines, machine tools, printing presses, sewing machines and typewriters, 36 per cent.

The rates of duty under the Payne-Aldrich law are reduced to the equivalent ad valorem duty in the comparisons here made. Using the advalorem equivalent for the old tariff as a basis, the new tariffs proposed by the bill compare with the old rates as follows:

The New Rates Proposed.

Iron in pigs, iron kentledge, speigeleisen, wrought and cast scrap iron and scrap steel, 8 per centum ad valorem; old rate, 15.66 per cent for pig iron, 8.72 per cent for scrap.

Ferro manganese, chrome, chromium metal, ferrochrome or ferrocarromium ferromolybdenum, ferrophosphorus, ferrotitanium, ferrotungsten, ferrovanadium, molybdenum titanium, tantalum, tungsten or wolfram metal, and ferrosilicon, 15 per centum ad valorem; old rate 6.52 to 20.69 per cent.

All iron in slabs, blooms, loops or other forms less finished than iron in bars, and more advanced than pig iron, except castings; also muck bars, bar iron, square iron, rolled or hammered, round iron, in coils or rods, bars or shapes of rolled or hammered iron not specially provided for, 10 per centum ad valorem; old rate, 25.62 per cent for slabs; 34 per cent for round iron; 13.80 per cent for bars.

Beams, girders, joists, angles, channels, car truck channels, columns and posts or parts or sections of columns and posts, deck and arch beams, and building forms together with all other structural shapes of iron or steel, whether plain, punched or fitted for use, or whether assembled or manufactured, 15 per centum ad valorem; old rate, 30 per cent

Boiler or other plate iron or steel, 20 per centum ad valorem; old rate 37 per cent.

Sheets of iron or steel, including crucible plate steel or sow plates, and skelp iron or steel, 15 per centum ad valorem; old rate, 32 per cent.

Forgings of iron or steel, or of combined iron and steel, but not machined, tooled, or otherwise advanced in condition, 15 per cent; old rate, 30.

Ball bearings and roller bearings, of iron or steel or other metal, finished or unfinished, 25 per centum; old rate, 45.

Railway bars made of iron or steel, and railways bars made in part of steel, T rails and punched iron or steel flat rails, railway fishplates or splice bars made of iron or steel, 10 per centum; old rate, 13.34 to 19.94.

Galvanized Schedule.

Sheets, hoop-iron, band or scroll iron or steel when galvanized or coated with zinc, spelter or other metals, or any alloy of those metals; sheets or plates composed of iron, steel, copper, nickel or other metal with layers of other metal or metals imposed thereon by forging, hammering, rolling or welding; sheets of iron or steel polished, planished or glazed by whatever name designated, including such as have been pickled or cleaned by acid, or any other material or process, or which are cold rolled, smoothed only, not polished, and such as are cold hammered, blued, brightened, tempered or polished by any process to such perfected surface finish or polish better than the grade of cold rolled, smoothed only; and sheets or plates of iron or steel, or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals, or either of them, is a component part, by the dipping or any other process and commercially known as tin plates, terne plates and taggers, iron 20 per cent ad valorem. Former rate 37 per cent.

Steel ingots, cogged ingots, blooms and slabs, by whatever process made; die blocks or blanks, billets and bars and tapered or beveled bars; mill shafting, pressed, sheared or stamped shapes, not advanced in value or condition; gun-barrel molds not in bars; alloys used as substitutes for steel in the manufacture of tools; all descriptions and shapes of dry sand, loam or iron-moulded steel castings; sheets and plates and steel not specially provided for, 10 per centum; old rate, 21.83 per cent.

Rivet, screw, fence and other iron or steel wire rods and nail rods 10 per cent; old rate, 14 per cent.

Wire Schedule.

All round iron or steel rods smaller than No. 6 wire gauge shall be classed and dutiable as wire. No article made from or composed of wire shall pay a less rate of duty than 20 per cent advalorem.

Barbed and other fence wire and wire fencing shall be exempt from duty; old rate, 38.18 per cent. Telegraph, telephone and other wires and cables composed of metal and rubber, or of metal, rubber and other materials, 20 per cent ad valorem; wire heddles and healds, 25 per cent.

Round wire, all wire composed of iron, steel or other metal except gold or silver, covered with cotton, silk or other material, corset clasps, corset steels, dress steels and all flat wires and steel in strips not thicker than No. 15 wire gauge, and not exceeding five inches in width, 20 per cent, and all other wire not specially provided for.

Automobiles, bicycles and motorcycles, and finished parts of any of the foregoing, not including tires, 40 per cent; old rate, 45 per cent.

Axles, axle bars, axle blanks or forging for axles, whether of iron or steel, 10 per cent; old rate, 14.81 per cent.

Blacksmith hammers, tongs or sledges, track tools, wedges or crowbars, whether of iron or steel, 10 per cent; old rate, 31.95 per cent.

Pipe and Hardware Schedule.

Cast iron pipe of every description, cast iron and irons, plates, seive plates, sadirons, tailors' irons, hatters' irons, and castings and vessels wholly of cast iron, including all castings of iron or cast iron plates which have been chiseled, writlled, machined or otherwise advanced in condition, 10 per cent; old rate, 16.13 per cent.

Lap welded, butt-welded, seamed or jointed iron or steel tubes, pipes, flues or stays, cylindrical or tubular tanks or vessels for holding gas, liquids, or other material, flexible metal tubing or hose, welded cylindrical furnaces, tubes or flues made from plate metal and all other iron or steel tubes, finished, 20 per cent; old rate, 29 per cent.

Crosscut saws, mill saws, pit and drag saws, circular saws, steel band saws, finished or further advanced than tempered and polished, hand, buck and other saws, not specially provided for, 12 per cent; old rate, 24.30 per cent. New rate on rivets of iron and steel, 20 per cent; on screws, 25 per cent.

Wheels for railway, or parts thereof, made of iron or steel, and railway tires or parts thereof, 25 per centum; old rate, 50.63 per cent. Blooms, or blanks for the same, without regard to the degree of manufacture, 10 per centum.

Aluminum, aluminum scrap, and alloys of any kind, in which aluminum is the component material of chief value, in crude form, aluminum in plates, sheets, bars and rods; barium, calcium, magnesium, sodium and potassium and their alloys, 25 per cent; old rate, 46.19 per cent.

Other schedules for hardware products —with new rate and the ad valorem equivalent for the old rate—include:

Knives and forks, 77.62 to 35; razors,

72 to 36; scissors and shears, 52.55 to 30; carpenters', butchers' and artisans' knives, kitchen knives and forks, 43.43 to 25; files and rasps, 61.16 to 25; table, kitchen and hospital utensils, 40 to 25; metal cans and packages, 66 to 30; steam engines, 30 to 25, and nippers and pliers from 60 to 30 per cent.

The Steel Companies and the Customs Appraisers.

[From the New York Commercial.]

Customs and importing circles evinced much interest in the new steel tariff bill introduced in the House of Representatives by Chairman Underwood reducing the duty on many metal commodities and placing others on the free list. It was recalled that for many years representatives of the several concerns in the steel industry, have lent their aid to the Treasury Department in upholding the highest rates of duties on practically all of the products affected by Mr. Underwood's bill.

Under the provisions of the customs administrative act, it is provided that when importers are dissatisfied with the classification imposed they may appeal to the board of general appraisers, and finally to the Federal Court of Customs Appeals. It has always been the practice of the Treasury Department to exact the highest duty on all foreign metal importations whenever a doubt existed regarding classification or value.

The importers in such cases have usually filed an appeal with the board alleging overcharge of duties and in such instances, counsel for the government has always received hearty co-operation and aid from representatives of the steel concerns.

While it was not practicable yesterday to ascertain the number of tariff cases won before the board during many years bearing on the steel industry, it is said that the government has been successful judicially in a percentage far in excess of the importers of metals representing the foreign manufacturers.

Interesting features of the Underwood bill are that in many lines of metal manufacture and product, it reduces far below claims by importers before the board during the past few years.

Clamp for Steam Shovels.

[From Canal Record.]

The foundry at the Gorgona Shops is preparing to cast 50 more of the steel rail clamps for steam shovels, which were invented by W. H. Bates, superintendent of Steamshovel Repairs, and adopted after a six months' trial. Upon adoption it was ordered that 350 be put in use; the additional clamps now to be cast will be sufficient to equip the remainder of the steamshovels in service.

ADDITIONAL CHARTERS.

[Pennsylvania, Ohio, Indiana, West Virginia and other charters, Page iii.]

Illinois.

Great Lakes Cement Construction Company, East Chicago; general contractors; stock, $10,000. H. H. Hays, A. P. Meredith and E. J. Meredith.

Pleasant Hill Cement Tile Company, Pleasant Hill, $2,500; manufacturing and dealing in cement, tile and other cement products. L. D. Wenster, John D. Webster, George Caylor.

B. & L. Caster Axle Company, Chicago; $250,000; manufacturing and dealing in automobiles and automobile parts. A. S. Burnell, F. E. Lyon, B. J. Crisup.

Harvey Coal & Lumber Company, Harvey; $50,000; contracting, building, construction, fuel, teaming, etc. Theodore A. Peterson, Alfred G. Foster, Susan K. Peterson, Alice R. Foster.

Eagle Claw Wrench Company, Chicago; $25,000; manufacturing and dealing tools and machinery implements, etc. Charles J. Burgess, M. D. Walworth, William Brown.

Demling Wendt Company, Chicago; $25,000; general contracting and construction and manufacturing business. Joseph Demling, Paul Wendt, H. E. Williams.

Manistee Salt Company, Chicago; $20,000; manufacturing and dealing in salt and other merchandise. George I. Hicks, James I. Ennis, Joseph E. Fitch.

Illinois Electric Porcelain Company, Macomb; capital increased from $30,000 to $50,000.

Morton Dry Kiln Company, Chicago; capital decreased from $50,000 to $10,000.

Aledo Brick & Tile Company, Aledo; dissolved.

Vaughan Rail Support Company, Chicago; location of principal office changed from Chicago to East St. Louis, Ill.

Reliance Glass Company, Chicago; capital stock increased from $5,000 to $6,000.

Kentucky.

Devney Automatic Machine Company, Glasgow; $50,000. R. S. Devney, W. H. Jones, J. S. Cable and J. R. White.

The Peerless Coal Company, Wofford; $10,000. D. O. Foley, U. S. Jones and Frank L. Smith.

American Culvert Manufacturing Company, Duechel; $50,000. George W. Storms, J. H. Alderson, J. G. Hikes and Ed. Fegenbush.

Byars Operating & Constructing Company, Adairville; $500. G. H. Byars, G. T. MceLan and V. P. Moore.

Scanlon Coal Company, Louisville; increasing capital from $60,000 to $100,000.

The M. B. Kendrick Company, Newport; $10,000. M. B. Kendrick, Samuel Kurtzman, Harrison Pierce and Carrie Kendrick. Manufacture and sale of soap.

Ohio Valley Pulley Works, Maysville; $50,000. E. P. Browning, S. P. Browning and Lewright Browning.

Lexington Broom Works, Lexington; $10,000. J. H. Letton, Laura Anderson and D. H. Anderson.

Yolonda Oil Company, Ashland; increase capital from $30,000 to $40,000.

New Jersey.

Vixen Tool Appointment Company, Camden; deal in iron, steel, manganese, coke, copper, etc.; $20,000. F. R. Hansell, George H. B. Martin, John A. MacEwan.

Noequa Stone Tile Company, Jersey City; manufacture artificial stone, ornamental tiling, wainscoting, etc.; builders, contractors; $500,000. Arthur F. Harroun, New York City; Frank D. Covey, Edward P. Stout, Jersey City, N. J.

The National Metalizing, Garwood, N. J.; manufacture metals and metallic compounds; $250,000; Royal W. France, 192 Greene avenue, Brooklyn; Francis S. Viele, 7 West Forty-fourth street; Car J. Kulberg, 169 West Eighty-first street; Jennie P. Thorne, 359 West Forty-sixth street; Leonard A. Watson, 308 West Fifteenth street, all of New York.

Buttler-Howell Company, New Brunswick, N. J.; manufacture sash, blinds, doors, stairs, cabinet mantels, etc.; $200,000. Howard V. Buttler, Abram S. Howell, G. Harold Buttler, Robert V. A. Buttler, all of New Brunswick, N. J.

Rowe Motor Manufacturing Company, Camden, N. J.; manufacture automobiles, cars, carriages, wagons, etc.; $500,000. Charles Def, Besore; Marion Lambert, Fiorence M. Caskill, 104 Market street, Camden, N. J.

American Metal Window Screen Manufacturing Company, Camden, N. J.; manufacture window screens; $75,000. John J. Ferguson; Leo T. Donnelly, Joseph A. Donnelly, 301 Market street, Camden, N. J.

New Jersey Testing Laboratories, Montclair, N. J.; conduct general laboratories; $50,000. Carleton, Ellis Walter C. Bladen, Adolphus H Ney, 92 Greenwood avenue, Montclair, N. J.

The Newark Art Foundry Company, Newark, N. J.; $10,000. Ernest Vatier, 39 Franklin street. Louis Heck, 24 Osborne Terrace; William Arthur, Waverly avenue, James Metcalf, 177 Clinton place, all of Newark, N. J.

Lambertville Iron & Steel Company, pany, Lambertville, N. J.; manufacture castings, machinery, etc.; $20,000. George W. Massey, George W. Arnett, Walter F. Bayhurst, all of Lambertville, N. J.

Delaware River Contracting & Construction Company, Camden, N. J.; construct docks, wharves, piers, bridges, etc.; $100,000. F. MacKinnon; F. L. Mills; S. R. Landers, Floyd H. Bradley, 106 Market street, Camden, N. J.

Integral Waterproofing Company, Jersey City; general contracting; $100,000. B. S. Mantz, L. H. Gunther, John R. Turner, all of Exchange Place, Jersey City.

Michigan.

Detroit Cooperage Company, Detroit, increase from $150,000 to $500,000.

Goodnow & Blythe Manufacturing Company, Detroit, increase from $10,000 to $25,000.

Eastman Hardy Wagon Company, Saginaw, increase from $150,000 to $300,000.

Weekly Summary: Investment Securities in the Metal Industries.

STOCK AND BOND SALES AT VARIOUS EXCHANGES.

Sales for January 19 to January 25, 1912, Inclusive.

	New York*	Pittsburgh	Chicago	Philadelphia	Boston	Total Sales	High	Low	Last
Allis-Chalmers	825					825	11¼	1	1¼
Allis-Chalmers pf.	200					200	63¾	63¾	63¾
American Can	27,260		2,945			30,675	12⅞	11⅞	12⅞
American Can pf.	960		1,150			2,110	94	92⅞	93
American Car & Foundry	5,300					5,300	53¼	52	52
American Car & Foundry pf.	225					225	116¼	115⅞	115⅞
American Locomotive	100					100	35	34½	35
American Locomotive pf.	100					100	103⅜	103⅜	103⅜
American Steel Foundry	3,060					3,060	31	28	30¼
American Brake Shoe & Fdry	550					550	95	92¾	95
American Brake Shoe & Fy pf.	600					600	138	134½	138
American Shipbuilding			100			100	50	50	50
American Shipbuilding pf.			118			118	104½	103	103
Amoskeag					140	140	78⅝	78	78⅝
Amoskeag pf.					396	396	100¼	99¾	100¼
Baldwin Locomotive pf.	948			823		1,771	103¾	103	103¾
Bethlehem Steel	3,730					3,730	32	30¾	31⅝
Bethlehem Steel pf.	1,300					1,300	61⅞	61	61
Cambria Iron				54		54	44½	44½	44½
Cambria Steel				876		876	44½	43	44
Colorado Fuel & Iron	650					650	26½	26½	26½
Crucible Steel		255				255	12⅝	12¼	12¼
Crucible Steel pf.		580				580	84	83	83
Chicago Pneumatic Tool			965			965	49¾	48	49⅜
DuPont Powder	12					12	90½	90½	90½
Electric Storage Battery				2,637		2,637	55½	55½	55
General Electric	1,632				145	4,777	160	158½	159
General Motors	800					800	35¼	34½	35¼
General Motors pf.	300					300	76	75⅝	76
Gt Northern Ore Prop.	3,350					3,350	42	40	41⅛
International Harvester	1,000					1,600	108	107½	107½
International Steam Pump	800					800	31½	30⅜	30⅜
International Steam Pump pf	12					12	83⅜	83⅜	83⅜
Lake Superior Corp.				536		536	28½	28¼	28⅜
Lackawanna Steel	200					200	30¼	30¼	30¼
McCrum Howell			125			125	39	38¾	39
McCrum-Howell pf.			185			185	92½	91½	92½
National Fireproof		350				350	6⅝	6	6⅛
National Fireproof pf.		1,225				1,225	27⅛	27	27
National Lead	1,430					1,430	54	53½	52½
National Lead pf.	220					220	107½	107	107½
New York Airbrake	300					300	56½	56½	56½
Pennsylvania Steel pf.				147		147	101	100	101
Pittsburgh Coal pf.	300					300	80⅜	80⅜	80⅜
Pittsburgh Steel pf.	100					100	102¾	102¾	102¾
Pressed Steel Car	450					450	33	32	32¾
Pressed Steel Car pf.	150					150	101⅛	101⅛	101⅛
Pullman Company	656			203		869	161	160	160
Railway Steel Spring	400					400	30¼	29⅞	29⅞
Republic Iron & Steel	1,065					1,065	26¾	25½	25½
Republic Iron & Steel pf.	625					625	86	85½	85½
Sloss-Sheffield	100					100	41⅞	41⅛	41⅛
U. S. Cast Iron Pipe pf.	110					110	50	50	50
United States Steel	395,250	1,320	1,185	10,302	14,197	172,554	67	65¾	66⅛
United States Steel pf.	3,741				351	4,092	111⅛	110⅜	111
Union Switch & Signal		315				315	88½	88	88½
Va. Iron C. & C.	100					100	70	68	68
Vulcan Detinning	300					300	18⅞	17	17
Vulcan Detinning pf.	100					400	79⅜	78	79
Warwick Iron & Steel				521		521	11¾	11	11¼
Westinghouse Airbrake		585				585	158	156½	156½
Westinghouse Electric	3,000	1,367				5,027	74	72½	72½
Westinghouse Electric pf.	200	1,300				1,500	119¼	119	119¼
Westinghouse Machine		10				10	22	22	22
Westmoreland Coal				11		11	75½	75½	75½

Quotations are based on New York Stock Exchange, when listed on that exchange. New York totals include sales on Consolidated Exchange.

BOND SALES.

	High	Low	Last
NEW YORK.			
102,000 Allis-Chalmers 5s..	54	52	53
51,000 Bethlehem Steel 5s	95⅝	94	95⅝
5,000 Col. F. & Iron 5s..	100⅛	100⅜	100⅜
10,000 DuPont Powd. 4½s	87½	87½	87½
5,000 Col. F. & Iron 5s..	93½	92⅝	93½
1,000 Gen. Electric 4½s..	82	82	82
97,000 Gen. Motors 6s	99	98½	99
15,000 Int. Steam Pump 5s	93½	92⅝	93½
1,000 Lack. Steel 5s 1915.	94	93⅝	94
1,000 Lack. Steel 5s 1923.	97	97	97
22,000 Lack. Steel 5s 1950.	81	80½	80½
1,000 N. Lyons & St 5s	95	95	95
5,000 N. Y. Airbrake 6s..	99½	99½	99½
1,000 Ry. St. Spring 5s..	98½	98½	98½
5,000 Tenn. C. & I. R. 5s	103	103	103
711,000 U. S. Steel 5s..	104	103⅝	103⅞
1,000 U. S. Steel Reg. ...	104	103½	104
27,000 West. Elec. 5s..	102⅝	102⅜	102⅝
16,000 West. El & Mfg. 5s	94⅞	94⅛	94½
1,000 Va. I. C. & C. 5s ..	98½	98½	98½
PITTSBURGH.			
50,000 Pitts Coal 5s ...	91¾	91	91¼
20,000 Mon. River Coal 6s	115½	115½	115½
CHICAGO.			
14,000 Chi. Pneu. Tool 5s	94	93½	94
6,000 West. Elec. 5s ..	102¾	102¼	102¼
BOSTON.			
3,000 Illinois Steel 5s...	100½	100½	100½
BALTIMORE.			
2,000 Con. Coal 5s ...	92⅝	92⅜	92⅜
4,000 Fairmont Coal 5s..	97	96⅞	97
5,000 Jamison C. & C. 5s	99	99	99
50,000 Pa. Water & P. 5s	94½	94½	92

BALTIMORE STOCKS.

	High	Low	Last
685 Con. Coal ...	104	104	104
1,200 Pa. Water & Power	65	61½	62¾
100 U. S. Steel ...	66⅛	66⅛	66⅞

FISCAL STATEMENTS

United States Steel Corporation.

To-morrow (January 30), the quarterly report of the United States Steel Corporation will be made public. If earnings for the last quarter of 1911 meet expectations the company will have more than earned the 5 per cent dividend on common stock. Net earnings for the December quarter are estimated at about $23,000,000. Depreciation is figured at $3,400,000 and on this basis after deductions for fixed charges and preferred dividends, there would remain a balance of $5,983,118 for common stock dividends, or 1.18 per cent on the stock outstanding. The income for the quarter, as roughly estimated, is as follows: Net, $23,000,000; depreciation, $3,400,000; balance, $19,600,000; interest on United States Steel bonds, $5,761,157; balance, $13,838,843; interest on sinking fund bonds, $1,550,806; balance, $12,288,037; preferred dividends, $6,304,919. If earnings for the December quarter were $23,000,000 the total for the year was $104,150,448. Such earnings would indicate a balance of $29,690,278 applicable to common stock dividends. This amount would equal 5.84 per cent on common stock. Earnings of 5.84 on common in 1911 would compare with 12.29 per cent in 1910, 10.60 in 1909, 4 in 1908, 15.60 in 1907, 14.30 in 1906, 8.50 in 1905, 1 in 1904, 5 in 1903, and 10.70 in 1902.

Standard Underground Cable.

The annual meeting of stockholders of the Standard Underground Cable Company was held in the company's office in the Westinghouse building, Pittsburgh, January 24. President Joseph W. Marsh stated that at the beginning of the new fiscal year the business booked was somewhat in excess of the total at this time last year. The company's new Canadian plant is under roof, and is expected to be ready for operation by May next. The retiring board of directors was unanimously re-elected, as follows: Joseph W. Marsh, John Moorhead, Jr., Louis W. Dalzell, B. F. Jones, Jr., J. N. Davidson, W. A. Conner, A. H. Childs, F. A. Rinehart and Joseph Wood.

Westinghouse Machine Company.

The Westinghouse Machine Company gives notice of a special meeting of stockholders to be held March 29, at which will be submitted propositions for an increase in the capital and also for an increase in the indebtedness. The stockholders will also be asked to take action on the proposed issue of the whole or a

portion of such additional capital as preferred stock. At present the company has outstanding $7,373,450 stock, the authorized issue being $10,000,000. In addition it has outstanding $7,848,000 in bonds and notes. Westinghouse Machine stock sold at 22 last week, an advance of $1 a share.

Western Tool & Forge.

Notice has been given of a special meeting of the stockholders of Western Tool & Forge Company to convene at the office of the company in Harrison township, Allegheny county, on January 30, to take action on approval or dissapproval of the proposed issuance of $400,000 of preferred stock of the company.

Phillips Sheet & Tin Plate.

It is stated in Philadelphia that the Phillips Sheet & Tin Plate Company, Weirton, W. Va., is preparing a $2,000,000 bond issue. It recently purchased control of the Pope Tin Plate Company, Steubenville, O., and a portion of the proposed authorization is to finance this purchase.

Ohio Public Service Securities.

The Ohio Public Service Commission has given permission to the American Gas Company, with principal works in Columbiana county, O., to issue $60,000 of common stock and put its approval on a sale of $16,000 of stock already issued.

Dividends Declared.

American Pneumatic Service Company.—Dividend of 3½ per cent on preferred stock and an initial distribution of 1 per cent on second preferred.

National Enameling & Stamping. — Regular 1¾ on preferred, payable April 1 and July 1; books close March 12 and June 10; open April 2 and July 2.

Water Rights Granted.

The Pennsylvania State Water Supply Commission last week approved the following applications:

Towanda Water Company, for the construction of a dam in the North branch of the Susquehanna river near Towanda, Pa.

Hooversville Water Company, for the "purpose of supplying water to the borough of Hooversville, in the county of Somerset, Pennsylvania."

The application of the Lewisburg Bridge Company for permission to reconstruct its bridge across the West branch of the Susquehanna river at Lewisburg, Pa., was disapproved.

French steamship interests are contracting for vessels for new line from French ports to San Francisco via Panama canal.

BUSINESS TROUBLES

American Spiral Spring.—The receiver, John Pfeil, is advertising for sale the plant of the American Spiral Spring & Manufacturing Company, at Fifty-sixth and Harrison streets, Pittsburgh, the sale to take place on the premises February 14, at 3 p. m. Two shop buildings, tools, machinery, stock, patent rights and franchises are offered for sale.

Platt Iron Works.—Petition, recently filed at Dayton, O., for sale of the Platt Iron Works, as a going concern, was endorsed by creditors and allowed by Referee W. S. McConnaughey. While it is understood that the property will be sold for not less than three fourths of its value, as appraised, the terms will not be determined until another meeting is held at the referee's office on February 3, when the details will be filed by the creditors. The petition stipulated that the plant, which is subject to an $800,000 mortgage, shall be sold as a whole. After the meeting next Saturday the usual publication of the sale will be made, and it is expected that formal disposal will follow in March.

Brown-Ketchum Iron Works.—In an effort by trustees and creditors to settle the affairs of the Brown-Ketchum Iron Works, at Greensburg, Pa., which is passing through bankruptcy, it is thought likely the Greensburg plant will be taken over by the Noelke-Richards Iron Works Company, at Indianapolis. Frank D. Staenaker, trustee of the Brown-Ketchum interests and president of the Capital National Bank of Indianapolis; Henry H. Hornbrook, attorney for the creditors of the concern, and H. R. Richards, president of the Noelke-Richards Company, were in conference at Greensburg last week. The Indianapolis company will continue the Greensburg plant in operation if the plan succeeds.

Cincinnati Equipment Company. — With debts nearly $500,000 the Cincinnati Equipment Company, Cincinnati, O., incorporated under the laws of Ohio, on January 24 filed a voluntary petition in bankruptcy in the United States District Court at Cincinnati. The failure of the Isaac Joseph Iron Company is attributed to the Equipment Company. The controlling genius of the two concerns was Isaac Joseph, who is personally heavily involved in the failure of the Cincinnati Equipment Company. The total liabilities scheduled by the Equipment Company is $407,513.79, and assets are rated at $135,288.13. The concern was engaged in the business of buying and selling second-hand railroad and contractors' supplies, and has a large number of small accounts. The secured debts are $123,910.47. There are 146 unsecured creditors, to whom is due $169,789.48, besides the bankrupt schedules, notes and bills "which ought to be paid by other parties thereto" amounting to $102,560.29. There is also accommodation paper amounting to $9,505.17.

The assets include stock in trade valued at $40,000, debts due on open account totaling $81,005.38, and an unliquidated claim, consisting of a lawsuit against the Big Muddy River Coal Company, amounting to $10,000. The heaviest single unsecured creditor is the Isaac Joseph Iron Company, with claims of $44,771. The claims are mostly for money loaned on promissory notes. W. J. Shroder, representing a creditors' committee in charge of the affairs of the Isaac Joseph Iron Company, declared that it was the financial difficulties of the Cincinnati Equipment Company which caused the embarrassment of the iron company. Mr. Shroder says that the Edna Smelting Company, another Isaac Joseph enterprise, is not affected by the failure of the other two companies.

Vanadium Mines Company. — On the petition of Helen F. Bennett, the Allegheny county common pleas court appointed W. A. Bonitz receiver for the Vanadium Mines Company, of Pittsburgh. The mines are located in Sierra county, New Mexico, while the plant for the reduction of ferro-vanadium is located at Rankin, Pa. The petitioner alleges that the concern has debts of $203,000, among which is a promissory note for $3,750, which is due her.

Monoroad Construction Company. — Judge Hough, of the United States district court at New York, has appointed Fred J. Phillips, receiver for the Monoroad Construction Company, of No. 136 Liberty street, New York. The company was incorporated under Delaware laws in August, 1908, with capital stock $1,500,000 which was afterward increased to $3,000,000 to construct and equip a monorail system for the Pelham Park Railroad Company from Barstow to City Island on Long Island, N. Y. The monorail is a new device, the car running on a single overhead track. The company has a floating debt of $12,000 for materials, and $65,100 bonds outstanding.

Stamping Mills Reopen.

The plants of the National Enameling & Stamping Company at St. Louis and at Granite City, Ill., resumed practically in full last week. The St. Louis plant, with the exception of a few departments, has been closed since December 1.

INDUSTRIAL WORLD

Absorbed the
American Manufacturer and Iron World.

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PITTSBURGH, PA., JAN. 29, 1912.

A Miserable Tariff Bill.

ONE feature alone of the tariff bill brought into the HOUSE last week by the WAYS AND MEANS COMMITTEE would stamp it as a miserable measure, the use of ad valorem rates throughout. That is a system which was thoroughly discredited 20 years ago, particularly as applied to the metal schedule. No one, we believe, has ever advocated ad valorem rates as good in principle; the best that can be said for them is that they furnish a means of levying duties when it is difficult to formulate specific rates. The excuse does not apply with the metal schedule. This schedule has been the subject of duty making by specific rates through four tariff laws, and the TREASURY DEPARTMENT and the courts have rendered decisions upon so many cases that the ground has been thoroughly covered, so that it is possible to fix specific rates and know that they will apply as intended.

One of the best tariffs the country has ever been given was the MCKINLEY TARIFF of 1890. It is true it defeated its party, but that is the way of most tariff bills. It effected wholesale reductions in the iron and steel schedules, but applied protection where needed and built up the American tin plate industry, which has become so well established that the manufacturers are entirely content with the present duty which is only one-fifth greater than the pre-MCKINLEY duty, and are willing to forego that extra fifth, though no more. When MR. MCKINLEY, as chairman of the WAYS AND MEANS COMMITTEE, brought in his bill, one of the points about it which he most strongly emphasized was its use of specific rather than ad valorem duties. He pointed out that the ad valorem rate is directly conducive to fraud, in undervaluations, and fundamentally wrong in principle because it applies the protective principle at the wrong time. When prices are low in all markets, and our manufacturers most need protection, the ad valorem rate puts on the lowest duty. When prices are high in all markets, it puts on a higher rate when protection is least needed. What American manufacturers most desire is a stable market and if prices tend to go very low would welcome, in some cases, the threat of importations, as a means of preventing an unreasonable advance, while consumers also would prefer the opportunity to go abroad if American producers cannot supply them. The ad valorem system is thus the worst possible.

We do not believe the ad valorem basis was adopted by the present WAYS AND MEANS COMMITTEE because the committed had any definite idea that it was economically sound, but rather because the committee did not have sufficient information to enable it to make up a rational schedule of specific rates.

The proposed reductions, comparing the percentage of the ad valorem rates with the equivalent in ad valorem rates which the present tarff showed on the average valuations in the fiscal year 1911, are heavier than made in any tariff revision we have had. The MCKINLEY LAW of 1890 made sweeping reductions, but remained a protective measure. The WILSON-GORMAN LAW of 1904, while bad, did not make reductions as sweeping as those now contemplated. The DINGLEY LAW of 1897 raised the WILSON rates, but by no means to the MCKINLEY level. Finally came the PAYNE-ALDRICH revision of 1909, which made general reductions in the DINGLEY rates. By these successive revisions the rates in general have been brought to a very low basis, compared with that of a quarter century ago. They have been at close to the danger line, and revision instead of being more drastic than ever before, should be more conservative than ever before. While the announcement was made before the terms of the bill were made public that there would be reductions of 30 to 40 per cent from the existing rates, the committee's own comparisons shows that the reductions average closer to 50 per cent, while there is a large free list containing many points which are entirely indefensible.

What has been most needed has been a scientific revision of the tariff. Throughout all recent tariff laws there has run a line of inconsistencies, rates on different products not hanging together, and each tariff revision, instead of correcting these inconsistencies, has continued them. Instead of bringing out a bill with fewer inconsistencies than have obtained in the recent laws, the committee has introduced fresh inconsistencies. Evidently it has proceeded with no specific knowledge whatever, but has simply taken the existing law and slashed right and left.

This introduction of fresh inconsistencies, where removal of the old inconsistencies was desirable, is the more deplorable when for the first time in the history of American tariffs a complete and comprehensive study of the iron and steel industry from a tariff standpoint has been made, by PRESIDENT TAFT'S TARIFF BOARD. It is known that the TARIFF BOARD has done excellent work and that its forthcoming report will furnish a better basis than has ever been offered, for the construction of a sensible and consistent iron and steel schedule. Ignoring this prospective means of improving on the existing tariff, the Democrats are starting out to make it much worse.

It is hardly worth while to take up the present bill item by item to show its absurdity. A single illustration can be given. In our recent tariffs, wire nails have been made dutiable at rates lower than the rates on the plain wire from which wire nails are made, and this is one of the inconsistencies which should have been corrected. Instead of taking a single step to correct it, the WAYS AND MEANS COMMITTEE has put wire nails on the free list. It is absurd to do this, when all the prior products are subject to duty—plain wire, wire rods, billets, pig iron and even scrap.

The iron and steel trade rests secure in the knowledge that PRESIDENT TAFT would undoubtedly veto the bill if presented to him. The SENATE will probably pass the bill, according to the Washington advices, but there seems to be no possibility of its being able to pass it over the PRESIDENT'S veto.

On account of the entire improbability of the bill's becoming a law, the iron and steel industry as a whole is doing relatively little to register its objections, serious as they are. This is a grave blunder. Its inattention is likely to be misconstrued. It may be said in future that while this bill did not pass, the iron and steel industry did not make general objection to it, and later an attempt may be made to pass a less drastic revision. The iron and steel industry might have difficulty in explaining its objections to such a bill, when it al-

lowed this present bill to go so far without general protest.

The sheet and tin plate industries have filed strong briefs with the WAYS AND MEANS COMMITTEE, showing that the proposed revision on their products should not be made. These briefs were largely the creation of a very few men, who generously undertook the burden for the whole sheet and tin plate branches. Other branches of the iron and steel trade have done practically nothing, and the time is likely to come when they will regret their present inattention and will find it is not as easy as it looks to explain that the reason they did not protest against the present bill was simply because they felt sure a presidential veto would prevent its enactment into law.

President Farrell a Witness.

NO greater antithesis could exist that between MR. ANDREW CARNEGIE and PRESIDENT JAMES A. FARRELL as witnesses before the STANLEY COMMITTEE. In our last two issues we have referred to MR. CARNEGIE'S testimony at considerable length, but chiefly in order to suggest that it was worth nothing, while at the same time explaining how it is that MR. CARNEGIE makes such good daily newspaper copy.

MR. FARRELL'S testimony is the direct opposite. It is clear, and to the point. He told the committee some things which it needed to know.

MR. FARRELL evidently does not agree with certain witnesses who preceded him before the STANLEY COMMITTEE, and suggested government control of large corporations by fixing prices. MR. FARRELL does not believe that is feasible. We are glad his testimony goes into the record, for we have never believed such a thing feasible, and, more than that, we doubt whether those who have expressed content with such an idea really would be willing to allow the government to go ahead and try it, without turning around and making herculean efforts to stop the movement.

It is rather interesting to observe the turn the committee received when it tried to make MR. FARRELL admit that "the INTERNATIONAL HARVESTER COMPANY gets larger rebates than are granted smaller concerns," and was met with the rejoinder that the STEEL CORPORATION has sold the HARVESTER company nothing for five or six years, as the latter had instituted a boycott because of a disagreement about some minor matter.

On several occasions the STANLEY COMMITTEE has resorted to the cheap tactics of asking leading questions which would meet with denials on the part of the witness, but leaving the record in such shape that some readers, not familiar with conditions, might perhaps infer that the committee was in possession of certain facts and the witness was trying to deny those facts. In this case, if MR. FARRELL had not been able to answer as he did, there might be a suspicion in the minds of doubters that the committee really had information about "rebates." It turns out, however, that the committee had no information at all. It knew that the HARVESTER company was a large concern and had some directors in common with the STEEL CORPORATION. According to its peculiar method of thinking, this meant "rebates." It is well to make a note of the confident manner in which the committee started to "show up" these rebates, and its ignominious squelching by the conclusive evidence that there had not even been any dealings!

The idea is rather absurd at best. Those in the steel trade well know that the INTERNATIONAL HARVESTER COMPANY, through its subsidiary, the WISCONSIN STEEL COMPANY, is a large producer of merchant steel bars in the CHICAGO district; and this concern and another independent have always been a thorn in the side of those who wished to maintain prices in the CHICAGO DISTRICT on steel bars. Time after time, one or the other of these two interests has cut loose and quoted lower prices, keeping the market in a continual turmoil. To suggest that the STEEL CORPORATION has been treating the HARVESTER COMPANY with special favors is really very rich.

A definite issue was joined between the STANLEY COMMITTEE and MR. FARRELL in the matter of stating costs of production. MR. STANLEY speaking in the committee room, but we presume chiefly for the ears of the voters of KENTUCKY, is reported to have said: "It is most vital that this committee get this information, and come what will, we will know it. There is power enough in this government to find it out." Now, what under the sun would MR. STANLEY do with the information if, for instance, he found that the cost of making pig iron by the STEEL CORPORATION was $11.2323¼? Would he ask whether that was at ZANESVILLE, or COLUMBUS, or GARY, whether it was Bessemer or basic iron, whether it was cast in pigs or f. o. b. mixer, whether it was with ore brought over the BESSEMER RAILROAD to CARRIE or over the PITTSBURGH & LAKE ERIE to NEVILLE ISLAND; whether or not it was with H. C. FRICK COKE COMPANY coke after allowing the interest and sinking fund charges on the bonds issued to pay for the COLONIAL properties; whether or not it was at a furnace disposing of slag to the UNIVERSAL PORTLAND CEMENT COMPANY; whether it was with HILL ore mined under a dollar or so royalty, or with ore from a mine owned in fee, etc., etc.? We rather think not, and we cannot conceive what MR. STANLEY wants to prove with the pig iron cost unless it is what a thorough investigator he is.

Obviously, it would be to the disadvantage of the STEEL CORPORATION for any

CONVENTIONS SCHEDULED FOR THE COMING YEAR.

NATIONAL BUILDERS' SUPPLY ASSOCIATION.—New York, January 30-31. R. Dinsmore, Wilmington, Del.

HARDWOOD MANUFACTURERS' ASSOCIATION OF UNITED STATES.—Cincinnati, January 30. Lewis Doster, care Hotel Sinton, Cincinnati, secretary.

NATIONAL CANNERS' ASSOCIATION—Rochester, N. Y., week of February 5. Samuel F. Haserot, Haserot Canning Company, Cleveland.

ENGINE & BOAT MANUFACTURERS. — New York (Sixty-ninth Regiment Armory), February 17-24.

CANADIAN MINING INSTITUTE.—Toronto, March 6, 7, 8, 9.

NATIONAL BRICK MANUFACTURERS.—Chicago, March 6-9. T. A. Randall, Indianapolis.

NATIONAL PAVING BRICK MANUFACTURERS. Chicago, March 4. W. P. Blair, Locomotive Engineering building, Cleveland.

AMERICAN CERAMIC SOCIETY. — Chicago, March 4-6. Edward Orton, Jr., O. S. U., Columbus, O.

AMERICAN BUILDING BRICK ASSOCIATION.—Chicago, March 6. J. Parker Fiske, Flatiron building, New York.

NATIONAL CLAY MACHINERY ASSOCIATION. Chicago, March 7-12. W. N. Durbin, Anderson, Ind.

SUPPLY MEN'S ASSOCIATION OF BOILER MANUFACTURERS (U. S. and Canada)—St. Charles Hotel, New Orleans, March 11-14.

RAILWAY ENGINEERING ASSOCIATION.—Chicago, March 19-21. E. H. Fritch, Monadnock block, Chicago.

AMERICAN SUPPLY & MACHINERY DEALERS' ASSOCIATION. — Norfolk, Va., May 13-15. F. D. Mitchell, 309 Broadway, New York.

MASTER BOILER MAKERS' ASSOCIATION.—Pittsburgh, May 14-17, 1912. Harry D. Vought, 95 Liberty street, New York.

OHIO SOCIETY MECHANICAL, ELECTRICAL & STEAM ENGINEERS. — Pittsburgh, May 16, 17, 18. F. E. Sanborn, Columbus.

RAILWAY STOREKEEPERS. — Buffalo, May 20-22.

AMERICAN HARDWARE MANUFACTURERS' ASSOCIATION AND SOUTHERN HARDWARE JOBBERS' ASSOCIATION.—Nashville, Tenn., May 28-31.

RAILWAY INDUSTRIAL ASSOCIATION.—Kansas City, May 12. G. L. Stewart, St. L. S. W. Railway, St. Louis.

AIR BRAKE ASSOCIATION.—Richmond, Va., May 7-10. F. M. Nellis, 53 State street, Boston.

MASTER CAR BUILDERS. — Atlantic City, June 12-14. J. W. Taylor, Chicago.

RAILWAY MASTER MECHANICS.—Atlantic City, June 17-19. J. W. Taylor, Old Colony building, Chicago.

RAILWAY SUPPLY MANUFACTURERS. — Atlantic City, June 17-19, 1912. J. D. Conway, 2135 Oliver building, Pittsburgh.

RAILWAY BRIDGE & BUILDING ASSOCIATION.—Baltimore, October 15-17. C. A. Lichty, C. & N. Railway, Chicago.

such information to be made public. Define the conditions as to how the statement of cost was made, either closely or loosely, and there is no question that competitors of the STEEL CORPORATION both in the UNITED STATES and abroad, would profit vastly more by the information than would the committee. Nothing is more unfair than to seek such information.

Undoubtedly, the STANLEY COMMITTEE had a perfect right to start investigating the STEEL CORPORATION. Of course, we question the right now, when the Corporation has become defendant in a suit by the Government. In the original premises, however, what it could fairly do was to investigate the conditions under which the Corporation made its profits, its methods of conducting business. It is with methods that the law deals, and whatever the Corporation's cost of making pig iron, the cost is the result of its pursuing methods. The methods, not the result, should be under scrutiny. That is clearly the legal position, and it is only to determine whether existing laws are obeyed, or whether there should be additional legislation, that such investigations are legitimate.

Twenty Years Ago.

OUR issue of January 29, 1892, an even 20 years ago, tells of a meeting of sheet steel manufacturers which had been held, looking to the formation of a permanent organization, to be called the "AMERICAN IRON AND STEEL SHEET ASSOCIATION." Afterward, it may be added, the manufacturers decided to recall MR. JOHN JARRETT from the BIRMINGHAM consulate in order to make him secretary of this organization, as well as of the tin plate makers' association which was formed soon after. The chairman of the meeting referred to was J. G. BATTELLE, of the PIQUA ROLLING MILL COMPANY; while W. C. CRONEMEYER, of the UNITED STATES IRON & TIN PLATE MANUFACTURING COMPANY, was secretary, and N. S. DUNCAN, of the CANONSBURG IRON & STEEL COMPANY, was treasurer. The other firms represented were: THE ETNA IRON & STEEL COMPANY, Bridgeport, O.; WHEELING IRON & NAIL COMPANY, Wheeling, W. Va.; BRIDGEPORT IRON COMPANY, Bridgeport, O.; WALLACE, BANFIELD & COMPANY, Irondale, O.; WHITAKER IRON COMPANY, Wheeling, W. Va.; CAMBRIDGE IRON & STEEL COMPANY, Cambridge, O.; REEVES IRON COMPANY, Canal Dover, O., and JENNINGS, BROTHERS & COMPANY, Allegheny City, Pa. One of the objects of the proposed association was to safeguard the tariff interests of the manufacturers. Later, the association became rather prominent in wage negotiations with the AMALGAMATED ASSOCIATION. Only two years after that, the Democrats, with WILSON as chairman of the WAYS AND MEANS COMMITTEE, undertook to revise the tariff, and we do not think there is any record of the association's accomplishing any results. Three years later the DINGLEY revision came up and the ranks of the tin plate manufacturers were somewhat divided as to whether they should try to keep the tin plate duty from being increased, because an increase promised no benefit, while the AMALGAMATED ASSOCIATION would undoubtedly demand an advance in wages in the event of an increase in the duty.

COMMISSIONER SMITH'S REPORT ON U. S. STEEL.

COSTS and profits of steel-making in this country, with special reference to the operations of the United States Steel Corporation, form the subject of a very lengthy report submitted to President Taft by Herbert Knox Smith, commissioner of corporations, on January 22. According to the figures contained in this report, the profits in the business are much smaller than is generally supposed, and current prices for steel products have but a small margin of profit for the small producer who has to buy his supplies in open markets.

Since the Steel Corporation owns its own iron and coal mines, has its own ore boats on the Great Lakes and its own railroad from Lake Erie to Pittsburgh, the cost of raw materials at its mills is hard to arrive at, though shown clearly on its books with profits to the mines, boats and railroad added. It retains for itself profits which smaller producers have to pay to others, and if prices were regulated by Congress on a basis which eliminated these gains, the outsiders would have to retire from the field.

Mr. Smith says that a very significant fact is the difference between the costs of large companies, which are well integrated, and small companies, which are not. A good example is Bessemer billets. In this product intermediate profits have also accumulated through ore, coke, pig iron, etc. For the group of large companies the book cost of billets was $19.89; for small companies, $22.54. The difference was $2.65. But now taking out transfer profits, the cost for large companies was $17.56, and for small companies, $21.69, a difference of $4.13 between the two. The large companies represented here included the Steel Corporation, the Republic, Lackawanna, and Jones & Laughlin steel companies.

As to Ore Changes.

Starting in with Lake Superior ore, the report declares it to be "a notorious incontrovertible fact, that the price of Lake Superior ore during the greater part of the period 1902 to 1906, and, indeed, back to 1895, has been established in large measure by agreement among the principal ore producing interests."

The excessive profits on ore, the reports say, handicap effective competition in the production of pig iron and steel by concerns which must go into the open market for their ore.

The transportation profit of 60 cents a ton realized by the Steel Corporation on its own ore over its principal ore carrying railroads and in lake vessels from 1902 to 1906 was "grossly excessive," the report alleges. As evidence of this, it is added, "the Corporation recently reduced the rates on its two principal ore roads."

"It is safe to assume," the report continues, "that the present reduced rate of 60 cents a ton is still excessive."

Question of Intermediate Profits.

Part of this difference in favor of large companies must, of course, he says, cover a greater investment, due to higher integration; part is due to superior efficiency resulting from such integration; but part represents also monopolistic control, especially in ore.

In so far as this difference means a larger per cent of return on each dollar of investment, it is a real difference in industrial position between the two groups. This difference must be considered in any public action affecting both classes of companies.

The book cost of Bessemer pig iron to the Steel Corporation for a period of five years averaged $13.89 a ton, of which the profits amounted to only $1.79, leaving a net cost of $12.10. It takes about 1.8 tons of Bessemer ore and more than a ton of coke to make a ton of pig iron. The book cost of the ore was $7.36; coke, $3.81; limestone, 43 cents; labor, 73 cents; other operating costs, 80 cents; depreciation and general expense, 76 cents—making $13.89. The greatest question is the valuation to be placed on the ore. This cost actually $2.40 a ton at a lower lake port and was charged to the mills at $2.88, the book cost. Carrying this reasoning further, Mr. Smith says:

Advancing to Bessemer rail ingots, there appears a book cost of $17.50. All the preceding intermediate profits, however, have been carried forward in the book cost of the raw material, pig iron. Thus, the total "transfer" profits for ingots were $1.84, leaving a net ingot cost of $15.75.

For heavy Bessemer rails, finally, the

book cost was $21.75. This is based on the book cost of ingots. The final transfer profits were $2.47. Deducting these leaves $18.80 as the revised cost. The total difference is thus a very considerable amount. About one-third of this revised cost was for labor in all stages of production, as appearing directly in the cost sheets.

Integration and Costs.

In his statement of conclusions, Mr. Smith says:

1—That cost statements for iron and steel products vary greatly on account of differences in methods and scope of operations and the legal organization and accounting of methods of different companies. Therefore, the statement and use of such cost data require the most careful discrimination.

2—That the "book costs" of highly integrated concerns (that is, those companies which link up under one control successive stages of production of materials and finished commodities) are not net costs, because they include large items of intermediate profit. These profits occur as the materials pass from one stage of production to another, because these materials are transferred from one department or subsidiary to another at market prices or at arbitrary "transfer" prices, instead of at cost.

3—That the average costs differed greatly, according as such intermediate profits were included or excluded. For example, the following table shows, in the first column, costs including all intermediate profits; in the second column, costs excluding intermediate profits on materials:

Products	Including profits.	Excluding profits.
Lake ore	$ 2.64	(a.)
Bessemer pig iron	13.89	$12.10
Large Bessemer billets	20.11	17.90
Bessemer standard rails	21.27	18.80

(a.)—No difference except for a trifling amount of intercompany royalty.

The above are average costs for companies having a very large proportion of the total production in the United States for the five years 1902 to 1906.

4—That if all these companies are divided into two groups—large companies which were all highly integrated, and small companies which generally were not well integrated—the average costs of the two groups differed decidedly. These differences were more marked when intermediate profits were excluded. For example:

	Including Profits		Excluding Profits	
Products	Large cos.	Small cos.	Large cos.	Small cos.
Lake ore	$ 2.07	$ 2.40	(a.)	(a.)
Bess. pig	13.86	14.27	$11.93	$14.21
Bess billets.	19.89	22.54	17.56	21.69
Bess. rails	21.27	....	18.80	....

(a.)—No difference except for a trifling amount of intercompany royalty.

The second column given above does not include transportation profits.

These differences betwen the two groups are, of course, largely due to the fact that the more steps in production controlled by one concern the more intermediate profits go to that concern, instead of being paid to outsiders. Accordingly, when intermediate profits are excluded, the net cost for an integrated concern is less than for one so highly integrated. It should be observed that the above cost figures show costs simply exclusive of transfer profits on materials, and not exclusive of transportation profits. Such transportation profits are earned by certain large companies, and above all by the Steel Corporation.

5—That while highly integrated concerns have a lower net cost than non-integrated concerns, and therefore a higher margin (not rate) of profit between costs and prices, yet on the other hand, being so integrated, they have a larger investment to be covered by this margin of profit over net cost.

6—That the costs for this period (1902 to 1906, inclusive) are substantially representative of present conditions. This is shown by comparison of costs for a number of important selected plants for these same products from 1902 to 1906, inclusive, and for 1910.

7—That the United States Steel Corporation has a special advantage in cost of production on account of its more complete integration, particularly in producing all the ore and coke it uses, and in having railroads for ore transportation, which branches of its business yield great profits. The costs of the Steel Corporation are especially reduced if these intermediate profits are excluded as is shown by the following examples for 1910:

Products.	Company Cost	Integ'd Cost
Lake ore	$ 2.88	$ 2.40
Bessemer pig iron	14.39	10.21
Bessemer standard rail	21.53	16.67

In considering these integration costs of the Steel Corporation the much more extensive and diversified investment of tha company should also be taken account of. The importance of this investment factor is clearly brought out in this report.

8—That the prices of Lake ore have been kept for many years at an unreasonably high level compared with the cost of production and the cost of the investment in the producing ore properties. Consequently, integrated concerns, transferring such ore to the pig-iron producing departments of the business at those high prices, necessarily show an unduly high book cost for pig iron and for various steel products made from pig iron.

9—That this policy in regard to ore prices has two important results. For companies selling ore it tends to make remunerative the investment in vast ore reserves which are not at present utilized, and to unduly enhance the value of such properties. It also tends to make the cost of iron ore excessively high to companies which must purchase it in the open market, and thus prevents them from becoming effective competitors in pig iron or in steel products made therefrom.

International Convention.—International Smoke Abatement convention and exhibition to be held in London, March 23 to April 12. Sheffield representatives of the abatement movement will present a report at this meeting dealing with the difficulties recently encountered in enforcing smoke-abatement legislation.

SMOKE PREVENTION

Court Reverses St. Louis Councils.—St. Louis city ordinance No. 24197, passed by the Municipal Assembly February 25, 1909, prohibiting the Chicago, Rock Island and Pacific Railroad using fuel locomotives to haul trains within 1500 feet of, or to run coal fired locomotives through Forest Park, St. Louis, was held to be unreasonable and a "capricious exercise of the city police power" by Circuit Judge Fisher at St. Louis last week. The city was permanently enjoined from bringing suit to enforce the ordinance.

The case was heard last June and a temporary injunction granted against the city. The city contended the steam and smoke from the locomotives did great damage to the shrubbery and foliage in the park. The railroad company contended to obey the ordinance would require the expenditure of $1,500,000 in electrifying its system.

Tests With Stoker.—A series of tests with the Crawford automatic stoker is being made at the Juniata (Pa.) shops of the Pennsylvania railroad, with a hope that within the present year a successful one can be built to be used on all of the company's locomotives. The lines west, where a different kind of coal is used, have been successful with the Crawford stoker, but on the divisions east of Pittsburgh, where the fuel is very much finer, the present arrangement does not work so well. Officials realize the fact that the locomotives are becoming so large that it is difficult for one man to keep up the firing. At the present time there are ten K2 passenger locomotives and ten H8A freight locomotives being constructed in the Juniata shops, fitted out with the automatic stokers. All these locomotives will be used west of Pittsburgh. A giant Pacific K29 passenger engine, built at Schenectady for the Pennsylvania lines, is now at the test plant and the stoker on this engine is being given a thorough try-out. This stoker is similar to the ones being built in Juniata.

The stoker, which is an underfeed, consists of an endless chain, which runs from the engine tender into the fire box. It is operated by steam, and when the steam is turned on, it carries the coal into the fire box and dumps it on the fire. The fireman's duties then will be to operate the stoker, turning on the steam and regulating the flow of coal until the fire is right. The fireman will also have to shake the grates, this by hand.

New York's five State canals carried 3,097,068 tons of freight in 1911, increase of 23,656 tons over 1910.

Market Conditions in Pig Iron.

THE LOCAL MARKET.

Bessemer and Basic Off Former Figures by 25 Cents.

PITTSBURGH.—Bessemer and basic iron are showing the effect of the ore price and freight rate uncertainty in guarded recessions from supposedly well established levels.

On a sale of 3,000 tons of Bessemer to a Pittsburgh castings interest, a price of between $14 and $14.25 furnace was made early in the week, and it is known that a recent 1,000-ton sale passed at practically $14 at furnace.

A 10,000-ton transaction in basic iron with a Cleveland buyer showed a price of $13.15 delivered Cleveland works, which is $12.90 Cleveland furnace or $12.25 Valley furnace. It is known a part of this iron came from Valley furnace.

The principal interest in the foundry iron field during the week centered about the inquiry by the Westinghouse Electric & Manufacturing Company for last half. The inquiry is expected to aggregate 12,000 tons if the price is right. A part of it is for special analysis iron. Quotations on No. 2 foundry iron show a range of full 50 cents from $13 to $13.50 Valleys, although the minimum figure is not available on ordinary tonnages.

New Buying at Seaboard.

NEW YORK.—New buying continues in small amounts, but with a brisker prompt market. Outside of the sale of 5,000 tons to a pump concern, the only deal closed in Northern New York of any importance was made when 1,500 tons were sold by a Buffalo furnace on a $14.00 basis. Demand by lower New England consumers and New Jersey interests involves good tonnages for prompt delivery. Orders for about 5,000 tons of foundry iron have been closed by New England consumers at current prices.

Ferro-manganese is still quoted at $41.00 with the price very firm. The supply it is believed will be sufficient in the face of the shortage caused by the overdue of a cargo almost five weeks. Sales of this material have been scattered.

Activity in West.

CHICAGO.—There is more activity in malleable and foundry graded in this district. The Rumely Company, of Chicago, is in the market for 8,000 tons of foundry iron for use at the La Porte and Battle Creek plants. There has been a big easing off in the demand for furnace coke with the rise in the temperature. The activity in this grade was reported to have been due to the shortage in the coal supply owing to the inability of mines to secure cars and coke was resorted to.

Basic Firm in East.

PHILADELPHIA.—There is a continued demand for basic for first quarter shipment, large tonnages having been taken by Eastern mills. Prices are slightly firmer. The Crane Valve Company has closed with an eastern Pennsylvania furnace for 1,500 tons of high silicon material.

New York Pipe Letting.

NEW YORK.—Standard Cast Iron Pipe & Foundry was awarded contract for 6,000 tons of cast iron pipe by city of New York. The pipe concern is now in the market for $5,000 tons of iron. An inquiry of about 5,000 tons of low grade foundry iron is reported to be out by a Delaware pipe concern.

May Curtail Southern Output.

BIRMINGHAM.—Southern output of pig iron may be curtailed slightly with the opening of the new month. Stocks do not show much actual reduction. Durthe week an accident happened at one of the city furnaces of the Sloss-Sheffield Company, and it is out of commission. A sister furnace is in readiness and may be put in operation the coming week. The make otherwise is a little slack. A few sales show the price around $10 to $10.25 for No. 2 foundry. Large consumers are said to have much iron yet to buy for second quarter. Furnace repairing in Southern territory continues on all sides, and before the opening of the second quarter three or four furnaces not now in shape will be ready to blow in. The home consumption is still strong.

The Dimick pipe plant at North Birmingham, recently purchased by the United States Cast Iron Pipe & Foundry Company, will resume March 1. There is a healthy melt at the pipe plants.

But little is now being said of the pig iron shipped out into the export trade recently from this district, orders for several thousand tons having been received from Hull, England, and Austria, part of the tonnage already being started. The statement was made a couple of weeks back that the export business must not be construed to mean that there was intense dullness in the domestic market. A report comes to the Southern territory that the larger companies in the South are considering striving for large tonnages that apparently are needed in the foreign market.

Machine shops and foundries in the Southern territory are showing signs of improvement. There is a little better demand for charcoal iron, the price of the latter holding firmly at $22. Southern scrap iron dealers report business quiet.

PRINCIPAL PIG IRON SALES OF THE WEEK.

Tons.

Pittsburgh.

5,000 Basic, first quarter deliveries only, to Cleveland consumer, $12.25 Valley furnace, $13.15 delivered.

3,000 Bessemer, February-March, $14 furnace or $14.90 delivered Pittsburgh.

3,000 No. 2 Foundry second quarter, $13.25 Valley furnace.

1,500 Northern No. 2, to Cleveland foundry, $13.50 delivered Cleveland.

Cincinnati.

6,000 Carwheel iron sold by Ohio furnace to St. Louis consumer, first half.

Philadelphia.

1,500 High Silicon to Crane Valve Company, from Eastern Pennsylvania furnace.

2,500 Pipe Iron, high sulphur, to Delaware river buyer, $14 delivered.

5,000 Forge, April-May delivery, from Virginia furnaces.

1,500 No. 2X, first quarter, $15.25 delivered, from Eastern Pennsylvania furnace.

New York.

3,000 Northern Foundry grades to New Jersey melter, second quarter.

Chicago.

4,000 Northern Iron to M. Rumely Company, second quarter, $15.10 delivered at Battle Creek, Mich. Iron from a Lake Erie furnace.

2,000 Northern Foundry, second quarter delivery Laporte, Ind., $14 furnace.

THE COKE MARKET.

New High Record Output—Spot Market Maintains New Level.

CONNELLSVILLE. — The production of coke for the Connellsville region for the week ending January 20, was 407,185 tons, which compares with 318,685 tons for the week ending December 23. This is the highest week's total in 18 months. The "Courier's" comparative figures for two weeks show:

Coke Produced By—	Week Ending Jan. 13	Jan. 20.
Furnace interests (tons)	247,060	258,127
Merchant ovens (tons)	144,372	149,058
Total output (tons)	391,432	407,185
Active ovens	29,230	30,424
Shipments (cars)	9,314	11,271

The total of 30,424 ovens active compares with 26,014 active ovens on December 9. The output has grown from 322,-

906 tons on the week ending January 6. Of the prospects the "Courier" says:

The production last week is estimated at over 400,000 tons, the highest production in 18 months. During the last half of 1909, production averaged over 400,000 tons and ran as high as 450,000 tons. This gait was kept up during the first half of 1910, but during the last half the pace slowed down and the year closed with production around 300,000 tons.

The number of active ovens was increased 1,200 last week, making a total of 4,020 ovens fired this month, the greater portion of them being ovens of the H. C. Frick Coke Company. This company now has 81.7 per cent of its ovens in operation. The merchant operators are running 71.1 per cent of their capacity. The sudden demand on the Frick company was caused by the blowing in of Steel Corporation furnaces in the Pittsburgh district.

Better Prices Hold.

PITTSBURGH.—With another week of good shipping weather the scarcity in prompt coke is expected to be broken, but in the past week there has been practically as much pressure as at any time to obtain odd lots to keep furnaces running, and $1.90 has been paid freely for prompt furnace coke, while occasionally $2 has had to be paid for odd lots. It may be estimated that about 150 cars have been sold in the past week at this range, representing practically nothing but the demand of furnaces which were not getting full deliveries on contracts, or shippers who were unable to meet contract obligations. Little coke is offered on contract at below the price of prompt coke, asking prices ranging from $1.90 to $2 or even higher in some cases. Consumers are nearly all covered, and in any event are not ready, at least not willing, to pay such prices on contract. Prompt foundry coke brings $2 to $2.25; contract foundry coke $2.10 to $2.25.

Rail Exports from South.

BIRMINGHAM.—Shipments of steel rails on the order from Kobe, Japan, from the Ensley plant of the Tennessee Coal, Iron & Steel Company, have started. The order calls for 3,300 tons. The order is being shipped from the Birmingham district to Savannah, Ga., thence by steamer to Japan. Recently a new order has come in from the Nashville, Chattonooga and St. Louis Railroad, while it is understood that two other Southern railroads are considering additional orders for rails. The rolling mills of the Tennessee company at Bessemer are operating on full time on plain structural material.

Bill providing that none but vestibuled steel cars shall be used in interstate passenger traffic has been introduced in the House by Representative Donohoo, of Pennsylvania.

Crude and Finished Steel Products.

PENNSY'S RAIL ORDER.

Place 150,000 Tons, Including Large Tonnages to Johnstown and Steelton.

NEW YORK.—Pennsylvania has ordered 150,000 tons of standard rails for delivery over the first seven months of the year, for lines East and West of Pittsburgh. This is the same tonnage as was placed for winter rolling last year.

Of this order, 33,000 tons go to Pennsylvania Steel Company; 60,000 tons to Cambria Steel and 55,000 tons to the Steel Corporation. A part of the order provides special specifications for rolling, but these have not been made public.

The 30,000-ton rail order of the Erie railroad, placed on Tuesday, is apportioned as follows:

Carnegie Steel, 13,890 tons of 90-pound rails; Lackawanna Steel, 8,000 tons of 90 pounds; Illinois Steel, 3,050 tons of 80 pounds, and Carnegie Steel, 4,730 tons of 80 pounds; a total of 21,890 tons of 90-pound rails, and 7,780 of 80-pound rails.

Negotiations for another large rail order for export are understood to be pending.

Detroit Contract to Pittsburgh.

PIITTSBURGH. — The American Bridge Company secured the 5,600-tons for the Dime Savings Bank of Detroit. The Virginia Bridge & Iron Company has been awarded the Holston Bank building in Knoxville, Tenn., on which Pittsburgh interests were bidders.

Norfolk & Western has placed 2,000 tons with the American Bridge Company to be turned out at the Ambridge plant.

Sheet Prices Steady.

PITTSBURGH.—There is increased capacity in operation in sheets. While there have been occasional reports of slight price irregularities in flat sheets in the past week or two, the market does not seem to have yielded and practically all the mills are adhering rigidly to the basis of 1.90c for black, 2.90c for galvanized and 1.40c for blue annealed.

Bridge Inquiry in West.

CHICAGO.—Chicago Great Western needs 2,000 tons of structural and bridge iron for new work.

Baldwin Locomotive Company's decision to build at East Chicago has caused real estate boom, with chartering of several large land companies.

PRINCIPAL STEEL CAR ORDERS OF THE WEEK.

NORTHERN PACIFIC.—1,500 steel underframe refrigerator cars, deliveries to August 1, American Car & Foundry Company.

BUFFALO, ROCHESTER & PITTSBURGH.—100 fifty-ton flat cars, Pressed Steel Car Company.

LACKAWANNA. — 200 refrigerator cars, Standard Steel Car Company.

NEW YORK CENTRAL. — 45 passenger coaches, Barney & Smith; 60 coaches, American Car & Foundry.

HOCKING VALLEY.—500 fifty-ton coal cars, American Car & Foundry.

WIRE ADVANCE IN EFFECT.

Independents and Corporation Announce Simultaneous Increase.

PITTSBURGH.—Effective last Monday morning, January 22, the American Steel & Wire Company and the Pittsburgh Steel Company simultaneously announced the expected advance of $1 a ton in wire and wire products, bringing the official price to $1.40 for plain wire and $1.60 for wire nails. Other independents, including Jones & Laughlin Steel Company and Cambria Steel Company, had anticipated the advance in many cases.

Contracts under the new card are limited to 60 days from the date of the advance. While the advance places wire prices on a level with October 25 last, when reductions were made to the lowest level in almost 20 years, the price is still $2 under January, 1911, and $4 under the high of 1910, when the price of wire reached $1.60.

The range in prices of wire products for 13 months has been as follows:

	Wire	Nails	Painted Barb	Gal. Barbed
1911—				
Jan. 1..	$1.50	$1.70	$1.70	$2.00
Jan. 23..	1.55	1.75	1.75	2.05
Mar. 6..	1.60	1.80	1.80	2.10
June 20..	1.50	1.70	1.70	2.00
Aug. 25..	1.45	1.65	1.65	1.95
Oct. 25..	1.40	1.60	1.60	1.90
Nov. 9..	1.35	1.55	1.55	1.85
Dec 11..	1.35	1.55	1.55	1.85
1912—				
Jan. 22..	1.40	1.60	1.60	1.90

Car Inquiry Pending.

PITTSBURGH.—Western Maryland will in the near future place an order for 3,00 freight and 25 to 30 passenger cars. Another new inquiry is for 2,000 all-steel gondolas for the Besemer & Lake Erie, to be delivered before the end of June.

Range of Weekly Quotations of Pig Iron

PIG IRON At Pittsburgh—	Jan. 27.	Jan. 20.	Jan. 13.	1912. Jan. 6.	1911. Dec. 30	Dec. 23.	Dec. 16.
Bessemer	14.90@15.15	15.15	15.15	15.15	15.15	15.15	15.15
Basic	13.35@13.40	13.40@13.65	13.35@13.40	13.40	13.40	13.40	13.40
No. 1 Foundry	14.90	14.90	14.90	14.90	14.50	14.50	14.50
No. 2 Foundry	13.90@14.40	13.90@14.40	13.90@14.40	13.90@14.15	13.90@14.15	13.90@14.15	13.90@14.15
Malleable	13.90	13.65@13.90	13.65@13.90	13.65	13.65	13.65	13.65
Gray Forge	13.40@13.65	13.40@13.65	13.40@13.65	13.40@13.65	13.40@13.65	13.40@13.65	13.40
Low Phosphorus	21.00@22.00	21.00@22.00	21.00@22.00	21.00@22.00	21.00@22.00	21.00@22.00	21.00@22.00
Ferro Silicon, 50 per cent	68.00@70.00	70.00	70.00@71.00	70.00	70.00	70.00	68.00@70.00
Ferro Silicon, 10 per cent	22.90@23.90	22.40@22.90	22.90	22.90@23.90	22.90@23.90	22.90@23.90	23.90
Silicon Spiegel, 10 to 12 per cent	23.40@24.90	23.40@24.90	23.40@24.90	24.40	24.40	24.40	24.40
Spiegeleisen	21.50@22.50	21.50@22.50	21.50@22.50	21.50@22.50	21.50@22.50	21.50@22.50	21.50@22.50
Ferro Manganese	42.70@42.95	42.70@42.95	42.95	41.95	41.95	40.45	40.45
At Virginia Furnaces—							
Basic	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. 1 X	13.00	13.00	13.00	13.00	12.75	12.75	12.75
No. 2 X	12.25@12.50	12.25@12.50	12.25@12.50	12.25@12.50	12.25	12.25	12.25
No. 2 Plain	12.00@12.50	12.00@12.50	12.00@12.50	12.00@12.50	12.00@12.25	12.00@12.25	12.00@12.25
Gray Forge	12.00	12.00	12.00	12.00	12.00	12.00	12.00
At Birmingham—							
No. 1, Foundry	10.75@11.00	10.75@11.00	10.75@11.00	10.75@11.00	10.75@11.00	10.75@11.00	10.50
No. 2, Soft	10.00@10.25	10.00@10.50	10.00@10.50	10.25@10.50	10.00@10.50	10.00@10.25	9.75
No. 2, Foundry	10.00@10.25	10.00@10.50	10.00@10.50	10.25@10.50	10.00@10.50	10.00@10.25	9.75
No. 3, Foundry	9.50@9.75	9.50@9.75	9.50@9.75	9.50@9.75	9.50@9.75	9.50@9.75	9.50@9.75
No. 4, Foundry	9.50	9.50	9.50	9.50	9.50	9.50	9.50
Gray Forge	9.25@9.50	9.25@9.50	9.25@9.50	9.25@9.50	9.50	9.50	9.50
At Philadelphia—							
No. 2X Foundry	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25
Basic	14.50	14.50	14.50	14.50	14.50	14.50	14.50
Gray Forge	14.25@14.50	14.25@14.50	14.25@14.50	14.25@14.50	14.25@14.50	14.25@14.50	14.25@14.50

STEEL. Tons of 2240 lbs., at Pittsburgh—							
Bessemer Billets	20.00	20.00	20.00	26.00	20.00	19.00@19.50	19.00@19.50
Open Hearth Billets	20.00	20.00	20.00	26.00	20.00	19.00@19.50	19.00@19.50
Forging Billets	27.00@28.00	27.00@28.00	26.00@28.00	26.00@28.00	26.00	25.00	24.00@25.00
Sheet and Tin Bars	21.00	21.00	21.00	21.00	21.00	20.00@21.00	20.00@20.50
Bessemer Steel Rails	28.00	28.00	28.00	28.0	28.00	28.00	28.00
Open-Hearth Steel Rails	30.00	30.00	30.00	30.00	30.00	30.00	30.00
Light Steel Rails—							
25 to 45 lbs.	25.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00
16 and 20 lbs.	25.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00
12 and 14 lbs.	26.00	28.00	28.00	28.00	28.00	28.00	28.00
Bessemer Wire Rods	24.50@25.00	24.50@25.00	24.00@25.00	24.50@25.00	24.50@25.00	25.00	25.00
Open Hearth Wire Rods	24.50@25.00	24.50@25.00	24.00@25.00	25.00	25.00	25.00	25.00
Muck Bar, all pig iron	28.00	28.00@28.50	28.00@29.00	28.00@29.00	28.00@29.00	28.00@28.50	27.00@28.00

FINISHED PRODUCTS. Tons of 2000 lbs., at Pittsburgh—							
Skelp Steel Grooved	23.50@24.00	23.50@24.00	23.50@24.00	23.50@24.00	23.50@24.00	23.50@24.00	23.50@24.50
Skelp Steel Sheared	24.00@24.50	24.00@24.50	24.00@24.50	24.00@24.50	24.00@24.50	24.00@24.50	24.00
Railroad Spikes	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Sheets, No. 28	38.00@40.00	38.00@40.00	38.00@40.00	38.00@40.00	38.00	38.00	37.00@38.00
Galvanized Sheets, No. 28	58.00@60.00	58.00@60.00	58.00@60.00	58.00@60.00	58.00	58.00	57.00@58.00
Beams, 3 to 15 inches	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.50@26.00	25.50@26.00
Beams, over 15 inches	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00
Channels, 3 to 15 inches	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.50@26.00	25.50@26.00
Channels, over 15 inches	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00
Tees, 3-inch and larger	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.50@26.00	25.50@26.00
Zees, 3-inch and larger	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00
Angles, 3 to 6 inches	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00
Angles, over 6 inches	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.50@26.00	25.50@26.00
Tank Plate	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00
Boiler Plate	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00
Hoops	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	27.00	27.00
Pipe	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00
Bessemer Steel Bars	23.00@24.00	23.00@24.00	23.00@24.00	23.00	23.00	23.00	22.00@23.00
Open Hearth Steel Bars	23.00@24.00	23.00@24.00	23.00@24.00	23.00	23.00	23.00	22.00@23.00
Common Iron Bars	25.50@26.00	25.50@26.00	26.00	25.00	25.00	25.00	24.00

and Various Finished Iron and Steel Products.

Dec. 9.	Dec. 2.	Nov. 25.	Nov. 18.	Nov. 11.	Nov. 4.	Oct. 28.	Oct. 21.	Oct. 14.	1911. Jan. 28.
15.15	15.15@15.40	15.15@15.40	15.15@15.40	15.15@15.40	15.15@15.40	15.40	15.40	15.55	15.90
13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40	13.40@13.65	14.40
14.50	14.75	14.75	14.75.	14.75	14.75	14.75	14.75	14.75	15.15@15.40
14.15	14.15@14.40	14.15	14.00@14.15	14.15@14.40.	14.15@14.40	14.40	14.40	14.40	14.65@14.90
13.40@13.65	13.40	13.40	13.50@13.70	13.40	13.40@13.90	13.90	13.90@14.00	13.90@14.15	14.40
13.40@13.65	13.40@13.65	13.40	13.40	13.40@13.50	13.40@13.65	13.65	13.65	13.40@13.90	14.15
21.00@22.00	21.00@22.00	21.00@22.00	21.00@22.00	21.00@22.00	21.00@22.00	21.00@22.00	21.50@22.50	21.50@22.50	20.00
65.00@66.00	65.00@66.00	65.00@66.00	64.00@65.00	64.00	60.00@62.00	59.00@60.00	58.50@60.00	58.00@59.50	54.50@55.50
23.90	23.90	23.90	23.90	23.90	23.90	23.90	23.90	23.90@24.90	24.90
24.90	24.90	24.90	24.90@25.90	24.90@25.90	24.90	24.90	25.90	25.90@26.90	25.00@26.00
21.50@22.50	21.50@22.50	21.50@22.50	21.50@22.50	21.50@22.50	21.50@22.50	22.50@23.50	23.50@25.50	23.50@25.50	23.90@25.90
39.45@40.45	39.45@40.45	39.45@40.45	39.95@40.45	39.95@40.45	38.95@40.45	38.95@40.15	38.65@38.95	38.95@40.45	46.45
12.00	12.00	12.00	12.00	12.00	12.25@12.50	12.25@12.50	12.25@12.50	12.25@12.50	12.50@13.00
12.75	12.75	12.75	12.75	12.75	12.75	12.75	12.75	12.75	13.75@14.00
12.25	12.25	12.25	12.25	12.25	12.25@12.50	12.25@12.50	12.25@12.50	12.25@12.50	12.50@13.00
12.00@12.25	12.00@12.25	12.00@12.25	12.00@12.25	12.00@12.25	12.25@12.50	12.25@12.50	12.25@12.50	12.25@12.50	12.50@13.00
12.00	12.00	12.00	12.00	12.00	11.75	11.75	11.75	11.75	11.75@12.25
10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	12.50@13.00
9.75	9.50@10.00	10.00	10.00	10.00	10.00	10.00@10.25	10.00@10.25	10.00@10.50	10.50@11.00
9.75	9.50@10.00	10.00	10.00	10.00	10.00	10.00@10.25	10.00@10.25	10.00@10.50	10.50@11.00
9.50@9.75	9.00@9.75	9.50@9.75	9.50@9.75	9.50@9.75	9.50@9.75	9.50@10.00	9.50@10.00	9.50@10.00	10.25@10.75
9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.25@9.50	10.00@10.50
9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50	9.50@10.00	9.75@10.00
15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00@15.25	15.00
14.50	14.50	14.50	14.50	14.50	14.25@14.75	14.25@14.75	14.25@14.75	14.50@14.75	14.25@14.75
14.25@14.50	14.25@14.50	14.25@14.50	14.25	14.25	14.00@14.25	14.00@14.25	14.60@14.25.	14.00@14.25	14.00@14.25

19.00@19.50	19.00@19.50	19.50@20.00	20.00	20.00	20.00	20.00	20.00	20.00	23.00
19.00@19.50	19.00@20.00	19.00@20.00	19.00@20.00	20.00	20.00	19.00	19.00	19.00@19.50	23.00
24.00@25.00	24.00@25.00	24.00	24.00	24.00	24.00	24.00	24.00	25.00	27.00@28.00
20.00@20.50	19.50@20.50	20.00@20.50	20.00@21.00	20.00@21.00	20.00@21.00	20.00@21.00	20.00@21.00	20.00@21.00	24.00
28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	**28.00**
30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	**30.00**
25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00	25.00@26.00
26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00	26.00@27.00
28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	**28.00**
25.00	25.00	25.00	25.00@25.50	26.00	26.00	26.00	26.00	26.00@26.50	28.00
25.00	25.00	25.00	25.00@26.00	26.00	26.00	26.00	26.00	26.00@26.50	28.00
27.00@28.00	28.00@29.00	28.00@29.00	28.00@28.50	28.00@28.50	28.00@28.50	28.00@28.50	28.00@28.50	28.00@28.50	29.00

23.50@24.50	23.00@23.50	23.00@23.50	23.00@23.50	25.00	25.00	25.00	25.00	25.00	25.00
24.00	23.50@24.00	23.50@24.00	23.50@24.00	27.00	27.00	27.00	27.00	27.00	26.00@27.00
28.00	28.00	28.00	28.00	28.00@29.00	28.00@29.00	28.00@29.00	28.00@29.00	28.00@29.00	29.00@31.00
37.00@38.00	37.00@38.00	37.00@38.00	37.00@38.00	37.00@38.00	37.00@38.00	37.50@38.00	37.00@38.00	37.00@40.00	**44.00**
57.00@58.00	57.00@58.00	57.00@58.00	57.00@58.00	57.00@58.00	57.00@58.00	57.00@58.00	57.00@58.00	58.00@60.00	62.00@64.00
25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	28.00
26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	29.00
25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	28.00
26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	29.00
25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	28.00
26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	26.50@27.00	29.00
25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	28.00
25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	25.50@26.00	29.00
24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	24.00@26.00	28.00
25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	25.00@27.00	**30.00**
27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	30.00
23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	23.00@24.00	29.00
22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	28.00
22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	22.00@23.00	28.00
24.00	24.00	24.00	24.00	24.00@25.00	24.00@25.00	24.00@25.00	24.00@25.00	24.00@25.00	**27.00**

Detail Prices on Finished Product in Iron and Steel.

STEEL PLATES.

Base prices, tank quality, ¼-inch thick, per 100 lbs., f. o. b. Pittsburgh:	
8¼ to 100 inches wide	$1.25 $1.30
Extras over base price—	
3/16-inch thick	.10
Gauges 7 and 8	.15
Gauge 9	.25
Gauges 10 and 11	.25
Circles	.20
Sketches	.10
Boiler and flange quality	.10
Marine steel	.40
Widths over 100, to 110 in.	.05
Wiaths over 110, to 115 in.	.10
Widths over 115, to 120 in.	.15
Widths over 120, to 125 in.	.25
Widths over 125, to 130 in.	.50
Widths over 130 in.	1.00

IRON AND STEEL SCRAP.

Old steel rails, re-rolling	$12.50 $13.00
Old steel rails, re-melting	12.50 13.00
Steel axles	16.00 16.50
Heavy melting scrap	12.75 13.00
Low phosphorus	15.00 15.50
Sheet scrap	10.75 11.00
No. 1 wrought scrap	12.50 13.50
Machine shop turnings	9.25 9.75
Cast borings	9.00 9.50
No. 1 cast	12.25 12.50
Old car wheels	12.75 13.00
Old iron rails	14.75 15.25
Railway Malleable	12.00 12.25
Iron car axles	21.00 22.00

TIN AND TERNE PLATES.

Open market, f. o. b., Pittsburgh—	
Coke tins:	
14x20, 100 lbs.	$3.40
14x20, 95 lbs.	3.35
14x20, 90 lbs.	3.35
Charcoal tins:	
A grade, 14x20, I. C.	4.40
A grade, 14x20, 100 lbs.	4.25
Ternes:	
20x28, I. C.	6.60
20x28, 200 lbs.	6.30

STEEL RAILS.

Fifty pounds and heavier—	
500-ton lots and over	$28.00
Car load lots	30.00
Less than car load lots	32.00
Light rails—	
12 pounds	26.00
16, 20 and 25 pounds	25.00
30 and 35 pounds	25.00
40 and 45 pounds	25.00
Relaying rails—	
Subject to inspection, f. o. b., Pittsburgh:	
Standard 50 lbs. & heavier	$22.00 $23.00
25 to 40 lbs.	22.00 22.50
16 to 20-pound rails	22.00 22.50

STEEL SHEETS.

Open market, per 100 lbs., f. o. b. Pittsburgh—

Gauge.	Black	Galv.
30	$2.05	$3.25
29	1.95	3.00
28	1.90	2.90
27	1.85	2.75
25–26	1.80	2.60
22–24	1.75	2.40
17–21	1.70	2.30
15–16	1.65	1.95
13–14	1.60	1.95
Blue Annealed.		
10 and heavier	$1.40	$1.45
11–12	1.45	1.50
13–14	1.50	1.55
15–16	1.60	1.65
Corrugated Roofing.		
Per square, 28 gauge, f. o. b., Pittsburgh—		
Painted	$1.35	
Galvanized	2.50	$2.55

WIRE AND NAILS.

Prices to jobbers in car load lots, per 100 lbs., retailers 5 cents additional:	
Wire nails	$1.60
Plain wire	1.40
Painted barbed wire	1.60
Galvanized wire	1.90

ALUMINUM PRICES.

No. 1 ingots, guaranteed over 99 per cent pure are held at 24c per pound in ton lots.

For small lots of 100 pounds and over advances of 3c per pound are charged.

Rods and wire .....base price 31 cents
Sheets .....base price 33 cents

BITUMINOUS COAL PRICES.

Pittsburgh district, f. o. b. mine—	Per Ton
Mine-run	$1.15@1.25
¼-inch	1.25@1.35
1¼-inch lump	1.35@1.45
Slack	.65@ .75

	Pgh.	Ohio No 8
At Cleveland—		
Mine-run	$2.13	$1.95
¼-inch	2.23	2.05
1¼-inch lump	2.33	2.15
Slack	1.63	1.40

	Pgh.	Free-port.
At Buffalo—		
Mine-run	$2.40	$2.10
¼-inch	2.50	2.20
1¼-inch lump	2.60	2.30
Slack	1.90	1.60

	Pgh.	Ohio No. 8
At Detroit—		
Mine-run	$2.55	$2.25
¼-inch	2.65	2.35
1¼-inch nut	2.75	2.45
Slack	2.05	1.60

	Pgh.	Ohio No. 8
At Chicago—		
Mine-run	$3.05	$2.75
¼-inch	3.15	2.85
1¼-inch nut	3.25	2.95
Slack	2.55	2.20

MERCHANT PIPE.

Base discounts, car load lots, subject to the usual variation of 5 per cent:

	Black Butt.	Lap.	Galvanized Butt.	Lap.
⅛, ¼ inch	73	..	53	..
⅜ inch	74	..	64	..
½ inch	77	..	67	..
¾ to 1¼ inch	80	..	72	..
2 inch	81	77	74	70
2½ to 3 inch	81	79	74	72
4½ to 6 inch	..	78	..	79
7 to 12 inch	..	76	..	66
Extra strong plain ends—				
⅛ to ⅜ inch	70	..	60	..
½ inch	75	..	69	..
¾ to 1½ inch	79	..	73	..
2 inch	80	76	74	70
2½ to 4 inches	..	78	..	72
4½ to 6 inches	..	77	..	71
7 to 8 inches	..	70	..	60
9 to 12 inches	..	65	..	55

The above steel pipe discounts are for "card weight." Less than carloads to destinations east of the Mississippi, two points lower.

WROUGHT IRON PIPE.

Full weight genuine wrought iron pipe car load prices to consumers; prices to jobbers one point and 5 per cent.

	Butt. Black	Galv.	Lap. Black	Galv.
⅛, ¼ inch	68	48	..	..
⅜ inch	68	58	..	..
½ inch	71	61	..	..
¾ to 1½	75	67	..	..
2 and 2½ inch	76	69	..	..
2 inch	..	..	71	63
2½ to 4 inch	..	..	74	67
4½ to 6 inch	..	..	73	65
7 to 12 inch	..	..	71	61

Extra Strong Plain Ends.

	Butt. Black	Butt. Galv.	Lap. Black	Lap. Galv.
⅛, ¼, ⅜ inch	65	55	..	..
½ inch	70	64	..	..
¾ to 1½ inch	74	68	..	..
2 and 2½ inch	75	69	..	..
2 inch	..	..	71	65
2½ to 4 inch	..	..	73	67
4½ to 6 inch	..	..	72	66
7 to 8 inch	..	..	65	55
9 to 12 inch	..	..	60	50

Double Extra Strong Plain Ends.

½ inch	60	54	..	..
¾ to 1½ inch	63	57	..	..
2 and 2½ inch	65	59	..	..
2 inch	..	..	61	55
2½ to 4 inch	..	..	63	57
4½ to to 6 inch	..	..	62	56
7 and 8 inch	..	..	55	45

MERCHANT STEEL.

Cold rolled and ground shafting, 55 per cent off, car load lots; 50 per cent off less than car load lots; delivered in base territory:

Planished tire steel	$1.30@1.40
Iron finish, up to 1½x½ in.	1.35@1.45
Iron finish, 1½x½ in. and over	1.20@1.30
Toe calk steel	1.70@1.80
Railway spring steel	1.70@1.80
Cutter shoe	1.95@2.05
Flat sleigh shoe	1.55@1.65
Crucible tool steel	7.00@8.00
Open hearth spring steel	2.05@2.30

Freight Rates on Pig Iron, Finished Steel, Coal and Coke

PIG IRON.

Pig iron, from Virginia furnaces to	Pgh.	Cin.	St. L.	Chi.	Phil.	N. Y.	Bos.
Shenandoah	$2.50	$2.35	$3.60	$3.20	$2.35	$3.30	$3.35
Bristol	4.35		3.75	4.10	3.60	4.55	4.60
Buena Vista and Roanoke	2.90	2.35	3.60	3.20	3.00	3.95	4.00
Kayula, Ivanhoe, Rural Retreat	2.90	2.35	3.60	3.20	3.40	4.35	4.40
Pulaski, E. Radford, Max Meadows.	2.90	2.35	3.60	3.20	3.25	4.20	4.25

Pig iron from Birmingham, Ala., tons of 2,240 lbs., to—	
Boston, by water	$4.60
Chicago	4.35
Cincinnati and Ohio river	3.25
Cleveland	4.35
Milwaukee and Northwest	4.75
New York, all rail	5.95
New York, rail and water	4.25
Philadelphia, all rail	5.00
Philadelphia, rail and water	4.00
Pittsburgh	4.90
St. Louis	3.75
To Pittsburgh from—	
Dunbar furnaces	.85
Kittanning furnaces	.60
Scottdale furnaces	.85
Valley furnaces	.90
Wheeling	.90
Valley furnaces to—	
Cleveland	.90

PIG IRON AND BILLETS.

Pittsburgh to	Pig iron.	Billets.
Baltimore	$2.15	$2.30
Buffalo	1.75	1.80
Boston	2.85	3.00
Chicago	2.80	3.00
Cincinnati	2.20	2.40
Cleveland	1.40	1.50
Columbus	1.60	1.90
Dayton	1.85	2.20
Detroit	2.15	2.25
Erie, Pa.	1.40	1.50
Indianapolis	2.20	2.65
Louisville, Ky.	2.80	3.00
New York	2.45	2.60
Philadelphia	2.25	2.40
Portsmouth, O.	2.10	2.50
Rochester	1.80	1.90
Richmond, Va.	2.65	2.80
Syracuse	2.10	2.20
St. Louis	3.50	3.80
Steubenville	.80	.90
Toledo	1.75	1.95
Wheeling, W. Va.	.90	1.00
Youngstown	.90	1.00
To Pittsburgh from—		
Mahoning and Shenango valleys	1.00	
Wheeling	1.00	

COKE.

From Connellsville region, per 2,000 pounds, to—	Fur.	Fdry.
Buffalo	$1.65	$1.90
Baltimore		2.15
Cleveland		1.65
Columbus		1.65
Cincinnati		2.10
Chicago		2.50
East St. Louis		2.80
Hamilton, Ont.		2.20
Joliet		2.65
Louisville		2.65
New York		2.85
Pittsburgh	.75	.80
Philadelphia		2.15
Richmond, Va.		2.95
Toledo	1.95	2.25
Valley furnaces	1.35	
Milwaukee	2.55	2.75
Detroit	2.10	2.25

TIN PLATE.

Per 100 lbs., Pittsburgh to—	C.L.	L.C.L.
Boston, Mass	18	21
Albany, N. Y.	16	19
Baltimore, Md.	14½	17½
Birmingham, Ala.	41	68
Cleveland, O.	10	13
Columbus, O.	12	15
Cincinnati, O.	15	18
Concord, N. H.	18	21
Charlotte, N. C.	39	61
Charleston, S. C.	33	70
Charleston, rail and water.	23½	31
Covington, Ky.	15	18
Chattanooga, Tenn.	33	65
Chicago, Ill.	18	21
Canadaigua, N. Y.	13½	16
Des Moines, Ia.	37½	48½
Detroit, Mich.	15	18
Denver, Colo.	84	1.18
Dover, Del.	17	20
Buffalo, N. Y.	11	13
East St. Louis	22½	26
Hartford, Conn.	18	21
Indianapolis, Ind.	17	19½
Louisville, Ky.	18	21
Montpelier, Vt.	21	24
Minneapolis, Minn.	32	42
New York	16	19
Norfolk, Va.	20	24
Natchez, Miss.	32	61
Portland, Me.	18	21
Providence, R. I.	18	21
Philadelphia, Pa.	15	18
Richmond, Va.	20	24
Rochester, N. Y.	11½	13½
Syracuse, N. Y.	13½	16
St. Louis, Mo.	22½	26
Terre Haute, Ind.	18	21
Topeka, Kan.	54½	68
Trenton, N. J.	16	19

FINISHED PRODUCTS.

Finished steel products, including plates, structural shapes, merchant steel and iron bars, skelp, pipe, fittings, hoop and cotton ties, plain and galvanized wire nails, rivets, spikes and bolts (in kegs), black plates, except planished, chain, etc., per 100 lbs.:

Pittsburgh to—	
Albany	.16
Buffalo	.11
Boston	.18
Baltimore	.14½
Canadaigua	.13½
Cleveland	.10
Columbus	.13
Cincinnati	.15
Chicago	.18
Harrisburg	.14½
Louisville	.18
New York	.16
Norfolk	.20
Philadelphia	.15
Rochester	.11½
Richmond	.20
Scranton	.15
St. Louis	.23
Washington	.14½
To Pittsburgh from—	
Mahoning and Shenango valleys	.05
Wheeling	.05

COAL.

Coal rates from mines—		
To Ashtabula		$1.00
To Allegheny, Pan Handle Ft. Wayne tracks		.43
To Allegheny, West Penn tracks		.48
To Allegheny, B. & O.		.35
To Pittsburgh, P. R. R. Main Line.		.40
To Pittsburgh, B. & A. V. Div.		.48
To Pittsburgh, B. & O.		.23
To Valleys		.70
To Buffalo		1.25
To Cleveland		1.00
To Detroit		1.40
To Chicago		1.90
To New York, gross ton		2.25
To Philadelphia, gross ton		2.00
From Freeport—		
To Buffalo		1.10
For Lake shipments—	Cargo.	Fuel.
To Ashtabula	.88	.98
To Cleveland	.88	.98
To Erie	.88	.98
West Virginia rates from mines—		
To Chicago		1.90
To seaboard points, gross ton		1.80
From No. 8, f Ohio—		
To Cleveland		.98
To Chicago		1.65
To Detroit		1.15

New Construction and Extensions

Foundry and Machine.

Baltimore, Md. — Elliott Machine Company will build machine shop, Brush and Severn streets, Southwest Baltimore; building of structural iron, one story, slag roof, concrete foundation; will front 50 feet, depth 160 feet. The flooring will be concrete and sheet metal. Chesapeake Iron Works has been awarded contract; work to start at once.

Meadville, Pa. — A one-story brick pattern storage warehouse is to be added to the plant of the Meadville Malleable Iron Company. The building will be 27x60 feet.

Columbus, O. — The American Well & Prospecting Company contemplates the erection of a one-story brick building, for manufacturing purposes. A foundry and machine shop will be erected.

Dayton, O. — The Edgemont Machine Company, Mound and Washington streets, is having plans made by Architect E. J. Mounstephen, McIntire building, for a one- and two-story factory and office building, 70x90 feet, brick construction.

Waynesboro, Pa. — F. D. Miller, A. V. Moore and A. S. Bacon, Westminster, Md., and R. K. Rice and W. W. Tringle, Baltimore, are erecting new brass foundry in Waynesboro.

Denver, Col. — Western Steel Foundries Company, which proposes to establish in Denver a plant for manufacture of steel tools, castings and parts for automobiles and electrical machinery, has taken over Colorado Gray Iron Foundry Company's plant in Denver.

Coal Mining, Coke, Etc.

Berkeley Springs, W. Va.—Land deed of the Sleepy Mountain Coal Company, through Special Master John C. Berry to Hay Walker, Jr., of Pittsburgh, has been recorded here. The land involved lies in Morgan and Berkeley counties, and includes about 15,000 acres. The consideration was $250,000.

Duluth. — Contract for construction of coal dock at West Duluth probably will be let the coming week. Officials of the Island Creek Coal Company, including President Holden, Vice President T. B. Davis and General Manager E. B. Merrill, will be in the city for that purpose.

Try a Want or For Sale ad in the INDUSTRIAL WORLD.

Iron and Steel.

Birmingham, Ala. — Sloss-Sheffield Steel & Iron Company will spend $110,000 on improvements and renewals at its coal mines and blast furnaces. One stack with its stoves will be relined, two new boilers and a blowing engine installed, and machinery overhauled.

Nashville, Tenn. — Nashville Industrial Bureau, A. P. Foster, secretary, announces organization of Ezell Scientific Flow Company, of Nashville; purpose, as stated in charter, of manufacturing plows and all the parts thereof, to establish and conduct a cupola or cupolas, and all necessary appurtenances of the same; to manufacture tools, implements and specialties. Company is capitalized at $100,000, consisting of 1,000 shares of $100 each—300 shares to be preferred stock bearing a rate of 7 per cent interest annually, and 700 shares to be common stock. Site for plant will be selected within a few days, and it is expected plant will be in operation in three months.

Youngstown, O. — Ohio charter was granted January 20 for newly-organized Brier Hill Steel Company, of Youngstown, to mine ores and manufacture steel products, with $15,000,000 capital stock. This is the largest incorporation authorized in Ohio for several years. The incorporators are Senator David Tod, John Tod, H. H. Stambaugh, John Stambaugh, E. L. Ford, R. C. Steese, Joseph G. Butler, Jr., and W. A. Thomas. These interests have plans under way for new open hearth steel plant in connection with Brier Hill and Youngstown furnaces and Thomas Steel Company's finishing mill.

Brackenridge, Pa. — The Fort Pitt Bridge Company, Pittsburgh, received the contract for building the steel plant addition for the West Penn Steel Company. The contract covers the buildings only.

Saltsburg, Pa. — Negotiations are being completed as the result of which W. C. Shade and George C. Moser, of Pittsburgh are to become the owners of the plant of the Cherrytree Iron Works at Cherrytree, property being purchased to the Pittsburgh men from E. P. Irvin, R. D. Tonkin and other stockholders, for $50,000.

Niles, O.—DeForest Sheet & Tinplate Company will commence next week on improvements to the plant which will approximate $100,000. Four hot mills and a new galvanizing and aluminizing plant included in additions and improvements. The buildings will be placed on the north side of the plant. The present galvanizing plant will be used for roofing and pressed steel department. A turbo-generator of 1,000-horsepower will be installed and other machinery added.

South Bethlehem, Pa.—C. M. Schwab, president of the Bethlehem Steel Company, announces company will spend $50,000 in extensions to buildings at the Saucon plant. A new chemical laboratory to cost $10,000; a $30,000 extension to the bridge shop and a new office building are among the improvements.

Iron River, Wis. — McGreevy Iron Ore Company has been organized here to develop mines. J. C. McGreevy, of Duluth, is president of the corporation.

Hardware, Sheet Metal, Etc.

Pittsburgh.—Architects W. G. Wilkins Company, Westinghouse building, are taking bids on foundations for warehouse for Frick & Lindsay Company, 109 Wood street, Pittsburgh, to be built on Sandusky street, Northside. Building to be brick, steel and reinforced concrete, 103x110, six stories. Superstructure plans ready about February 1.

Cincinnati, O. — Witt Cornice Company secured articles of incorporation from the Secretary of State for a reorganization, with $25,000 capital. The incorporators are Mary R. Witt, J. W. Witt, E. W. Brown, M. W. Brown and Province M. Pogue.

Scottdale, Pa. — Projectors of sheet metal plant are negotiating with Secretary W. L. Kelly, of Scottdale Chamber of Commerce, for site for sheet metal ware plant to employ 125 skilled men. Projectors, who are Chicago men, guarantee to operate plant which will consume 10 to 12 cars sheet metal a day. Local board has offered projectors old cutlery plant for remodeling.

Pittsburgh.—Contract for sheet metal work for new School of Applied Science, Carnegie Technical Schools, Pittsburgh, was awarded to S. Keighley Metal Ceiling & Manufacturing Company, Pittsburgh.

New Kensington, Pa. — President A. V. Davis, Aluminum Company of America, announces that plans have been adopted for extensions to company's plant here, to cost $100,000.

Auto, Implement Etc.

Pittsburgh.—Krupp Motor Company, 4139 Jenkins Arcade, is considering sites at Ambridge and Beaver Falls, Pa., for plant to consist of five buildings, including machine shop. Architects, Irvin & Witherow, Keystone Bank build-

ing, Pittsburgh. Plans ready for bidding February 23. [See "Equipment News."]

Machinery and Tools.

Cincinnati, O.—Alvey-Ferguson Company, with plant in suburb of Oakley, which located there last year, coming to this field from Louisville, in the market for material for addition to plant. The work will be done under the direction of the Allyn Engineering Company, Cincinnati.

Burlington, Vt. — Grace Machinery Company is about to incorporate under laws of the State of Maine, to manufacture the Wonder combined shear and punching machine, a device invented by John W. Grace, of Burlington, and designed to punch holes in and cut cold railroad steel. The device was patented January 18, 1910. Fred R. Campbell, of Burlington, and A. J. W. Greig, of Barre, are the attorneys and promoters of the company.

Springfield, O. — The Foos Gas Engine Company will enlarge its present plant by erecting a one-story building 57x312 feet, brick construction. Contract will likely be awarded soon.

Defiance, O.—The H. J. Spieker Company, Michigan street, received the contract to build an addition to the plant of the Defiance Machine Company. The building will be of brick and steel fireproof construction, measuring 76x132 feet.

Cincinnati, O. — Franklin Alter was re-elected president of the American Tool Works Company, at the annual meeting of the stockholders. It was decided to build a $300,000 concrete and steel mill building on Bond Hill, Cincinnati.

Philadelphia. — Baldwin Locomotive Works, Philadelphia, bought 320 acres of land at Calumet, Ind., near Indiana Harbor, Ind., under which it will immediately begin the erection of a plant with a capacity of building 10 locomotives a week.

Warehouses, Business Bldgs.

Huntington, W. Va.—Chamber of Commerce adopted recommendation for building of Chamber of Commerce building to cost $100,000; plans being prepared. John T. McClintock, chairman of committee.

Pittsburgh.—F. J. Osterling, Commonwealth building, is preparing plans for a 14-story office and bank building to be erected at the corner of Penn and Highland avenues for the East End Savings & Trust Company. Building 60x100.

Pittsburgh.—George Hogg Co., 804 Penn avenue, was awarded contract to build the eight-story warehouse for F. F. Nicola, at Penn avenue and Water street. The building will be constructed of brick and terra cotta and will be 110x138 feet. Architect T. E. Bilquist, 341 Sixth avenue, prepared the plans.

Pittsburgh.—Architect M. Nirdlinger, Diamond Bank building, is writing specifications for the mercantile building to be built for the Scientific Materials Company, 717 Forbes street. The building is to be seven stories high measuring 22x100 feet, built of brick, terra cotta and fireproof material.

Bridge; Structural; Ironwork

Williamson, W. Va. — New railroad bridge across Tug Fork of the Big Sandy river at this point, has been authorized by war department.

Ellwood City, Pa. — Baltimore & Ohio Railroad Company has let contract for a bridge at this place.

Columbus, O. — City Council has before it a proposition for bonding city for $850,000 to construct viaduct at North Third street. Special election to vote on bonds will be held May 21.

Mt. Vernon, O. — Knox county commissioners opened bids for the re-letting of the contract for the Bartlett bridge in Morris township. Engineer's estimate was $1,800. Mt. Vernon Bridge Company bid $2,800; Delaware Bridge & Iron Company $1,550. Closing of contract postponed to January 29.

Butler, Pa. — Council adopted plans new Baltimore & Ohio viaduct, as agreed on by City Engineer Carson and Assistant Engineer Paul Didier, of the Baltimore & Ohio.

Huntington, W. Va. — County court awarded contracts for Fudges creek and Spurlock creek bridges to Penn Bridge Company, Beaver Falls, Pa., price in each case being $248. Bridges are 36 feet, 8-inch lattice girder type.

Brownsville, Pa.—Work on new county bridge across Monongahela river here will start the coming week. The old bridge, dismantled over a year ago, was built in 1833. The new structure will cost Washington and Fayette counties $210,000.

Railroad Structures.

South Sharon, Pa. — Pittsburgh & Lake Erie Railroad is having plans drawn for new passenger stations, in Sharon and New Castle.

Concrete, Brick, Clay.

Connellsville. — Glass Brick Company decided to double capacity of plant at Connellsville. Provision was also made for the sale of $100,000 of the company's 7 per cent preferred stock. The retiring directors were re-elected. Raymond W. Green, of Uniontown, who is a director, was elected secretary and treasurer.

Boilers, Power Plants, Etc.

Grensburg, Pa. — Contracts let by J. E. Myers, Penn station, near Greensburg, for planing mill, three-stories, 48x888, with boiler house 16x130 and concrete tool house. Equipment purchased of Baird Machinery Company, Pittsburgh. Will use electric power.

Erie, Pa. — Revised plans are being prepared by Engineer H. G. Gamper, care Erie Company, 19 West Seventh street, for a brick, concrete and steel power plant. The building will probably be two stories high, measuring 100 x200 feet.

Celina, O. — The Board of Infirmary directors will make a number of alterations and additions to some of the buildings, also the installation of heating system. Plans are in the hands of Architect Andrew DeCurtin, Opera House Block, Lima.

Power, Hydro-Electric, Etc.

Bluefield, W. Va. — Bluefield Water Works & Improvement Company has purchased springs at Cross Roads village, which will furnish town with 500,000 gallons water a day, in addition to present supply. Water will be brought to Bluefield by gravity. William McCarthy, superintendent of water company. New mains needed.

Augusta, Me. — Puget Sound Traction, Light & Power Company has filed articles of incorporation with the Secretary of State. The authorized capitalization is $40,000, of which nothing was paid in.

Public Works; Municipal, Etc.

Harrisburg, Pa.—State Armory Board awarded contract for construction new armory at Bradford to Tuna Manufacturing Company, of Bradford, Pa., at $21,500.

Wheeling, W. Va. — Maj. F. W. Alstaetter, United States engineers, Wheeling, will receive bids to February 20, on supplying 25,000 barrels of Portland cement for Ohio river dam No. 28, at Huntington, W. Va.

Erie, Pa. — Water Commissioners of city of Erie have authorized Chester & Fleming, hydraulic engineers, Pittsburgh, to prepare plans and specifications for a 20,000,000-gallon filtration plant for the city water works.

Alliance, O. — Plans for storage basin, water filtration plant and booster station to supply suburb, of Mt. Union, were submitted to Alliance councils by

C. N. Chester, of engineering firm of Chester & Fleming, Pittsburgh. Plans referred to council committee. Estimated cost of system as planned, $108,000. Report does not favor artesian well supply because of difficulty in centralizing artesian well plant.

Youngstown, O. — City Engineer Lillie and Water Works Superintendent John Lewis submitted to city board of control plans for reservoir on 11-acre site, for downtown district low-pressure service.

Batavia, O.—An addition is to be built to the court house building, from plans submitted by Architects Robertson & Fahnestock, Gerke building, Cincinnati.

Hubbard, O. — A water system is to constructed by the town of Hubbard, from plans prepared by Engineer William Wilson, Wick avenue, Youngstown.

Salem, O. — The Board of Public Service and Engineer L. E. Chapin, Frick building, Pittsburgh, will take bids until the 26th inst., for the erection of a sewerage disposal plant, to cost $50,000.

Somerset, Pa.—Engineer Frank Fluck has completed plans for a sewerage disposal plant, to be built for the borough of Somerset. Plans must be submitted to the State Board of Health for approval.

Mansfield, O. — Harman Brothers, Williamsport, Pa., were the lowest bidders for the erection of the post office building.

Xenia, O. — The City of Xenia has selected Levi Riddell as engineer for the proposed sewerage disposal plant, to be built at a cost of $40,000.

Miscellaneous.

Cincinnati, O.—Emile E. Werk, secretary and treasurer M. Werk Company, soap manufacturers, 410 Poplar street. Cincinnati, also plates company will build new plant at Chester Lake to cost approximately $500,000. Ground to be broken by early spring and plant completed by end of present year. Present facilities are inadequate. About 20 acres are embraced in the new site.

Sebring, O. (Mahoning county)—Strong Manufacturing Company will begin work on new buildings for fireclay plant in spring. James H. McGraw, Jones & McGraw, Bellaire, O., contractors. James L. Fry, Sebring, secretary of company.

Toledo, O. — Larrowe Construction Company, 1199 Woodward avenue, Detroit, has taken sub-contract for roofing, glass, piping, stokers, pumps, steel tanks, stacks, fireproofing, transmission, conveying and elevator machinery for sugar plant to be erected by Toledo Sugar Company at Rossford, O.

St. Louis, Mo.—Interests behind new merger of shoe companies, which will build plant to operate without United Shoe Machinery equipment, promise to locate in St. Louis. W. F. McElroy, formerly superintendent of several factories of the Hamilton-Brown Shoe Company, who recently resigned, will be president of the independent company, and F. C. Rand, vice president of the International Shoe Company, recently formed by the merger of the Roberts, Johnson & Rand Shoe Company and the Peters Shoe Company, will be secretary. Other officers have not yet been determined on, nor has the location of the factory been selected.

St. Louis, Mo.—General contract for the Barnes Hospital, to be erected on King's Highway, has been awarded to the Hill-O'Meara Construction Company for $808,000. Six St. Louis firms bid on the contract which is for the entire group of buildings. Hospital is to be completed ready for equipment in 18 months. Theodore C. Link, architect;

MANUFACTURING PURPOSES

The Sweeney Industrial Properties are located at the mouth of the Niagara River, on the North Tonawanda 20 miles from Buffalo and Niagara Falls. We are at the head of Lake Navigation, and at the point where the 1,000-ton barge canal enters into the Niagara river, thus giving us water [illegible] with New York City and the East, and Chicago and the West. We have 20 acres of property available for [illegible] plants. Located as we are on a trunk line railroad, and are an up-to-date city of 25,000 people, and in close touch with Buffalo and other places, [illegible] manufacturing plants for rent. Will build for desirable tenants on long-time lease. New cement block factory, 70x300. All improved [illegible] of entry for shipping freight and express. Offices for rent from May 1, next. We solicit correspondence from manufacturers who are located in close, [illegible] to look over our proposition, with a view of locating where conditions are very attractive. Write

JAMES SWEENEY, JR.,
Agent Sweeney Industrial Properties,
North Tonawanda, N. Y.

Wanted, For Sale, Bargains.

Want and For Sale advertisements published in these columns, one cent a word. No advertisement taken less than 25 cents.

WANTED

WANTED— 1 yard crane, about 75-foot span, 220 volt, 10 ton lift, with about 300 feet of runway. Address Industrial World, Box 10-A, 108 Smithfield St., Pittsburgh, Pa.

WANTED—New or second-hand equipment as follows:
One 12" or 14" engine lathe, with 12-foot bed, for automobile work and general use.
One 16" or 18" engine lathe, for heavy work, to take automobile axles.
One 20" upright drill complete.
One radial drill, for use on frame work, largest hole to be bored, estimated at 1¼".
One 25 H. P. twin cylinder gas engine.
One 2.5 kw. generator.
One electric drill (hand work).
One 16" or 18" lathe, 8-foot bed, to take about 5 feet between centers. Combination rest; power cross feed; back geared and hollow spindle.
One 2" or 21" drill press.
One 20" drill press, both hand and power feed.
One 24"x36" slide valve engine (left hand).
One 20"x36" Corliss engine (left hand).
One 600 H. P. Corcoran water heater (open type).
Address H, care Industrial World, Pittsburgh, Pa.

WANTED — Inquiries to purchase or sell iron, steel, metals, machinery, contractors' equipment, iron buildings, and bridges. Address Thomas J. Pope, 59 Beekman street, New York.

WANTED Second hand large gear, about 4 feet or larger 2-pitch 4 inch bore, also smaller gears. Send list and prices. Address Potts Manufacturing Company, Camden, N. J.

POSITIONS WANTED

WANTED—Clean-cut Young Man, 24 years old of good habits, appearance and address, exceptional ability and ambition, desires to connect with a first-class concern as an all-around man, for either inside or outside work. Opportunity desired more than salary at present. Has technical and clerical experience as a draftsman and estimator, also spent some time in sales department as correspondence clerk and sales duties, with reputable concerns; excellent references. Address B, care Industrial World, Pittsburgh, Pa.

ASSISTANTS WANTED

WANTED—Assistant Purchasing Agent who has had experience in the iron and steel business. State experience, where last employed and salary expected. Address Box C, care Industrial World, Pittsburgh, Pa.

WANTED—Assistant Superintendent of Machine Department. One who has had experience in the building of engines and rolling mill machinery. State experience, where last employed and salary expected. Address Box D, care Industrial World, Pittsburgh, Pa.

WANTED — Salesman for Cement Coated Wire Nails. Must have had experience. Give reference, name and salary. All communications strictly confidential. American Steel Company, Park Building, Pittsburgh, Pa.

FOR SALE

FOR SALE 240 acres of pink dolomite limestone, along the Baltimore & Ohio Railroad. For further information, call or write to G. W. Engle, Charles-Town, Jefferson county, W. Va.

HYDRAULIC WHEEL PRESSES
29 Sizes. Capacities 50 to 400 tons
AIR COOLED AIR COMPRESSORS
6 Sizes. Capacities 4 cubic feet to 25 cubic feet.
Write for catalogues and prices.
E. R. CALDWELL & CO., Bradford, Pa.

Murray Carleton and Sam M. Kennard, trustees. Six buildings, each 3-story, are to be erected at present time, main frontage on King's Highway, 600 feet. The central and largest building is the administration building. The exterior will be cream-colored brick, trimmed with granite and Bedford stone. Reinforced concrete will be used for the interior, making the buildings fireproof.

Cincinnati, O.—Jewel Carriage Company, Carthage, O., will build a branch in Canada, near the American border. Corporation has borrowed $25,000 from the Western & Southern Life Insurance Company, which will be used in erecting the Canada factory. President C. F. Pratt, of the company, expects to leave for Canada the latter part of next week, when a site will be selected. The company there will be separate from the local plant, and will have a capitalization of $700,000.

Lima, O. — Plans are under way by the Beiderman Manufacturing Company, for the erection of a one-story brick or cement block manufacturing plant, to cost $10,000. The building will be 60x132 feet and will be used for the manufacture of kitchen cabinets and office furniture.

Toledo, O. — A. Bentley & Sons Company, 37 North Huron street, Toledo, received the general contract to build the manufacturing building for the Toledo Factories Company. The building will be four stories, 210x325 feet and will be constructed of reinforced concrete.

Newark, O. — Chicago Wrecking Company, Chicago, has general contract for building new rough rolled glass plant for Advance Glass Company, this city. The factory building 60x100 feet, lean-to 12x45 feet; lehr room 48x80 feet; raw material room 40x100 feet; packing room 40x135 feet; stock room, 24x107 feet; engine room 32x40 feet. Buildings steel frame and corrugated iron.

New Panama Mail Fleet.

Plans for four steamers costing $11,000,000, to be operated between New York, San Francisco, and the Orient by the way of Panama, are in the possession of R. P. Schwerin, of San Francisco, general manager of the Pacific Mail Steamship Company, who is in the East to find a builder for the craft.

Their length is to be 680 feet. With a speed of 17 knots the new oil-burners are expected to make the run from New ork to Frisco in 17 days, each carrying 300 first cabin, 200 second cabin, and 300 steerage passengers, together with 17,000 tons of freight.

Try a Want or For Sale ad in the INDUSTRIAL WORLD.

Charters to New Corporations.

Indiana.

The Casmire Manufacturing Company, Indianapolis; to manufacture ice-cream freezers; $100,000. B. A. Casmire, C. B. McCulloch and W. C. Boobs.

Elnora Electric Company, Elnora; public service; $3,000. H. H. Beever, Thomas Rugent, J. E. Pershing, J. E. Courtney and W. H. Black.

The Stamm Machine Works, Aurora; manufacturers and dealers; $3,500. V. B. Canfield, Charles Ebel and C. B. Wilson.

Cable Conveyor Company, Elkhart; manufacturers; $25,000. Cornelius Cable, Jacob Oberholtzer and S. S. Martin.

Goldschmidt Detinning Company, of New York; appointment of Charles Lindmueller as state agent.

Imperial Coal Company, of Elkhart, notice of dissolution.

Crane Company, Chicago; notice of appointment of C. M. McElwaine, of Indianapolis, as State agent.

Delaware.

J. G. Fitzpatrick Manufacturing Company, of Pittsburgh, to manufacture wood and metal patterns of brass, bronze, etc.; $25,000. J. G. Fitzpatrick, Pittsburgh; W. H. Erskine, Turtle Creek, Pa.; Alcorn Rector, New York city.

Pennsylvania.

Elverson Ore & Stone Company, Coatesville, Pa.; $20,000; mining and quarrying ore and stone; leasing real estate for that purpose. James H. Glendhill, George E. Dietrich, Edward R. Meredith, all of Coatesville, Pa.; James R. Wynn, Warwick, Pa.

Wyoming Valley Construction Company, Wilkes-Barre; $5,000; concreting, excavating, paving and construction business. Wilbur G. Allen, Walter E. Harter, Giles C. Hon, all of West Nanticoke, Pa.; Silas E. Hon, Macedon, N. Y.; Stanley Oliver, Dorranceton, Pa.

Consumers Electric Company, Pittston, Pa., (office Wilkes-Barre); $5,000; supplying light, heat and power to the public. Frank P. Slattery. Edward N. Noll, Joseph A. Moran, all of Wilkes-Barre, Pa.

Consumers Electric Company of West Pittston, Pa., (office Wilkes-Barre); $5,000; supplying light, heat and power by the means of electricity. Frank P. Slattery, Edward N. Noll, Joseph A. Moran, all of Wilkes-Barre.

Superba Coal Company, Connellsville, Pa.; $10,000. A. C. Stickel, J. W. Buttermore, M. E. Frazee, all of Connellsville, Pa.

Messinger Manufacturing Company, Tatamy, Pa.; $100,000; manufacturing iron, steel or both, or any other metal;

Ask the Expert

¶ If you are having trouble with your power plant and find your power is costing more than it should, Call 3200 Grant, Contract Department, and have one of our power expert help you solve the problem. His services and advice will cost you nothing.

The Allegheny County Light Co.

435 Sixth Avenue, Pittsburgh, Pa.

CUTLER-HAMMER

CRANE PANELS

Provide Every Protection for the Motors

No fuses are required and the expense and delay of renewing them is eliminated. Yet every necessary protection against overload, short circuit and failure of voltage is provided for.

This panel simplifies installation and groups all switches, protective devices, etc., in one location. Safety switches prevent accidents when inspection or repairs are made.

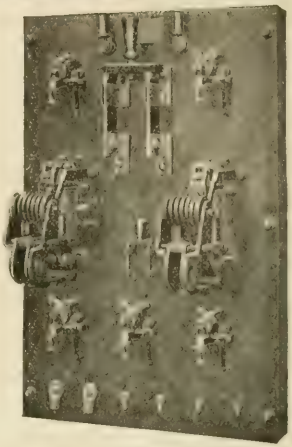
Cutler-Hammer Overloads, one of which is usually placed in each motor circuit, **can** be adjusted **without** the use of an ammeter.

On these panels two single-pole magnetic switches are used in the main line instead of a double-pole switch, because—

Should trouble cause a double-pole switch to stick, neither side of the line would be opened. But with two single-pole switches, as used on Cutler-Hammer Panels, there is practically no chance of sticking at the exact same time. Either one will open the circuit.

Also, if an overload remains on the line, one switch will trip and open the circuit as soon as the other closes. A double-pole switch will chatter or "telegraph."

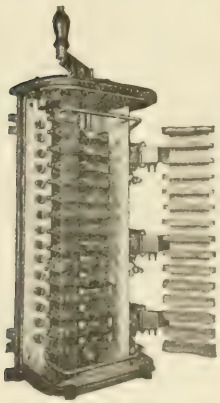
Further particulars on request.



Crane Panel
for a three-motor crane

Drum Type Dynamic Brake

CRANE CONTROLLERS



Interior view

The Cutler-Hammer new Dynamic Brake Controllers are of the enclosed type. The tight fitting drum prevents dirt, dust, etc., from falling on the current carrying parts and prevents accidents to operator and machinery, which are so liable with open type controllers in small crane cabs.

The operator has absolute control of raising and lowering. Dependable service, without delays and injuries, increases the working capacity per day.

Dynamic brake controllers insure lowering the load under perfect control, even should the power fail. No mechanical lowering brake is required.

A description of these recently developed crane controllers is contained in a new bulletin. Our nearest office will send you a copy promptly. Drop us a post card to-day.

Casing closed

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NEW YORK: Hudson Terminal 30 Church Street CHICAGO: Peoples Gas Bldg. PITTSBURG: Farmers Bank Building
BOSTON: 176 Federal Street PHILADELPHIA: 1201 Chestnut Street CLEVELAND: Schofield Building
PACIFIC COAST AGENTS: Otis & Squires, 579 Howard St., SAN FRANCISCO, 229 Sherlock Building, PORTLAND, ORE.
and W. B. Palmer, 416 E. 3rd St., LOS ANGELES.

machinery and equipment of all kinds. G. Frank Messinger, George S. Messinger, Joseph A. Happel, all of Tatamy, Pa.

Universal Motor Car Company, Pittsburgh; $10,000. Jacob W. Kennedy, Washington, Pa.; Harry A. Cornelius, William M. Carleton, Henry E. Weiskopf, Pittsburgh.

Railway and Industrial Engineering Company, Pittsburgh; $15,000. A. W. Burke, Wilkinsburg, Pa.; B. W. Kerr, Edgewood, Pa.; F. R. Harbison, Tarentum, Pa.

Point Marion Electric Company, Pittsburgh; $5,000; supplying light, heat and power to the public. H. W. Wieland, 411 Dawson avenue, Bellevue, Pa.; L. B. Custer, 402 Gray building, Wilkinsburg, Pa.; H. B. Smith, 109 Hutchinson avenue, Edgewood Park, Pa.

Coraopolis & Woodlawn Interurban Railway Company, Allegheny county, Pa.; electric power; $60,000. E. C. Dithrich, president, Coraopolis, Pa.; directors, C. B. Ferguson, Coraopolis, Pa.; J. E. Schell, Pittsburgh; E. E. Laughner, South Heights, Pa.; H. McAfee, Pittsburgh; J. E. Helm, Coraopolis, Pa.; W. T. Tredway, Coraopolis, Pa.; H. J. Thomas, Coraopolis, Pa.; W. J. Dithrich, Coraopolis, Pa.; J. W. Arras, Coraopolis, Pa.; F. H. Stark, Coraopolis, Pa.; U. G. Marks, Pittsburgh; Charles Gibson, Jr., Pittsburgh.

Karthus Fire Brick Corporation, Clearfield, Pa.; $60,000; manufacturing and sell fire clay and other clays and rocks. C. B. McCullough, Jersey Shore, Pa.; J. H. Miller, Lock Haven, Pa.; Singleton Bell, Clearfield, Pa.

North Lebanon Gas & Fuel Company, North Lebanon, Pa.; $5,000; supplying gas for heat and power in township of North Lebanon. Daniel Weaver, Ray S. Bicksler, Edward W. Meyer, all of North Lebanon, Pa.; Henry Weaver, Mt. Joy, Lancaster county, Pa.

Philadelphia & West Chester Traction Company, Philadelphia; increase of capital from $1,000,000 to $1,400,000. C. L. Rihl, secretary.

Pittsburgh Emery Wheel Company, $75,000 to $100,000.

Northwestern Construction Company, Franklin, Pa. capital increased from

THE
Smith Gas Power Company
LEXINGTON, :: OHIO
Builders of the
SMITH
AUTOMATIC GAS PRODUCER
(Suction and Pressure Type)
Mechanically operated gas producers in large units Suitable for Power and Fuel Gas Plants.
TAR EXTRACTORS
AND GAS CLEANING PLANTS

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2—200 Horsepower Smith Gas Producers, with scrubbers and all connections.
1—400 Horsepower Horizontal Riverside Gas Engine, with all connections.
1—175 Horsepower Horizontal Riverside Gas Engine, with all connections.

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STEEL CASTINGS UP TO 50 TONS
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Brass Castings of all Descriptions "Vandergrift" Bronze Bearings
UNITED ENGINEERING & FOUNDRY CO.,
2311 Farmers Bank Building, Pittsburgh, Pa.
Largest Roll Makers in the World
Makers of the Largest Rolls

$100,000 to $200,000. J. M. Campbell, secretary.

Wyoming Supply Company, Reading; nothing to $25,000.

Pittsburgh Paint Supply Company, $50,000 to $75,000.

Ingersoll Engineering & Constructing Company, Pittsburgh; increase capital from $6,000 to $250,000. W. F. Neely, secretary.

Vivian Coal & Coke Company, Philadelphia, capital increased from $5,000 to $50,000. T. F. Bartholomew, secretary.

Eureka Bending & Wheel Company, York, Pa., capital increased from $25,000 to $50,000. Jacob L. Bower, secretary.

Brey & Krauss Manufacturing Company, Allentown, increase of capital from $12,000 to $30,000. Irvin Leiss, secretary.

Hanover Electric Light & Power Company, Allentown, increase of capital from $5,000 to $20,000. Charles M. Walter, secretary.

Pope Stone & Brick Company, Pittsburgh, decrease of the capital from $50,000 to $5,000. George S. White, secretary.

Goodyear Lumber Company, Galeton, Pa., decrease of the capital from $2,000,000 to $20,00. F. A. Lehr, secretary. Change of par value of shares from $100 per share to $1 per share.

Peerless Heater Company, Pittsburgh, increase of the capital from $50,000 to $120,000. H. Edgar Gambrill, secretary.

Keystone Glue Company, (Lycoming county, Pa.), increase of capital from $425,000 to $475,000. A. C. Jacobs, president.

Buckingham Coal Mining Company, of Clarion, capital increased from $20,000 to $50,000.

Ohio.

Cadillac Sand & Gravel Company, Toledo; builders' supplies; $25,000; 250 shares of $100 each. Fred F. Feige, Richard W. Kirkley, B. M. Williams, Q. Koeppe and Frank N. Geer.

Permanent Sales Company, Cleveland; cutlery, sales and suction cleaners; $500,000; 5,000 shares of $100. M. A. Limodge, James Pittaway, Frank Needham, D. E. Johnston and J. P. Wilsey.

Forsythe Pattern Company, Youngstown; decreased capital from $50,000 to $10,000. George J. Renner, president; George W. Ruaye, secretary.

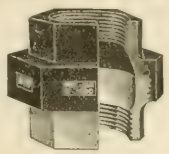
Clifton Park Lumber Company, Cleveland; increase of capital from $15,000 to $30,000. A. R. Teachout, president; C. M. Real, secretary.

Centerburg Commercial & Improvement Company, Centerburg; assisting manufacturing and commercial enterprises to locate in Centerburg, Ohio; $10,000; 400 shares of $25 each; C. H. Bishop, W. C. Phillips, L. M. Daily, C. M. Grubb, Lloyd M. Bell, Homer C. Smith, C. E. Smith, S. Robert Best and Earl B. Walters.

The Witt Cornice Company, Cincinnati; sheet metal work and galvanizing; $25,000; 250 shares of $100 each. Mary R. Witt, J. W. Witt, E. W. Brown, M. W. Brown, Providence M. Pogue.

Ohio Punctureless Tire Company, Columbus; punctureless tires; $50,000. Elmer O. Pettit, William Moore, C. N. Bowen, H. E. White, John F. White.

Hist Potato Machinery Company,



"The Union with no inserted parts"

Don't Use Untested Unions

The **"Kewanee" Union** is given a severe test before leaving the factory—125 pounds compressed air pressure under water. No hidden leak can escape this test. See page xvii next week.

National Tube Company,
PITTSBURGH, PA.

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MAKERS OF CLEVELAND, O. U.S.A.
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ALEX. LAUGHLIN & CO.,
Engineers & Contractors,
PITTSBURGH, PA.
Builders of Every Description of
FURNACES AND GAS PRODUCERS
—FOR—
IRON AND STEEL WORKS.

Highest Grades Phosphor Bronze, Monel Metal and German Silver
IN RODS, SHEETS AND WIRE
Manufactured by **SHIMER, McGLYNN & CO., Inc.**
In their new and up-to-date mill. Correspondence solicited.
SHIMER & CO., Inc., Selling Agents, Bullitt Building, PHILADELPHIA, PA.
Pittsburgh Office: OLIVER BUILDING.

Cleveland; machinery and supplies; $100,000. Joseph Hidy, Edith A. Close, S. M. Davis, E. E. Rodd, George B. Harris.

Brier Hill Steel Company, Youngstown; mining ores, coal, limestone, manufacturing iron, steel and other metals; $15,000,000, 150,000 shares of $100 each. H. H. Stambaugh, John Tod, E. L. Ford, R. C. Steese, John Stambaugh, David Tod, Joseph G. Butler, Jr., and W. A. Thomas.

Ventwell Store Front Company, Cleveland; copper-brass moldings or other metallic substances for store fronts; $50,000 A. D. Phillips, L. W. Fahnestock, William R. Phillips, P. E. Moosmiller and James L. Adams.

The Massillon Oak Hill Coal Company, Massillon; mining coal; $18,000. John C. Albright, Chauncey H. Albright, Albert Albright, Adolph G. Kippel and Charles A. Albright.

Lagonda Oil & Gas Company, Springfield; $50,000. C. M. Hiestand, B. A. Rose, S. D. Hockman, W. B. Gray and W. E. Banta.

Troy Rubber Tire Company, Troy; rubber and metal tires; $10,000, 100 shares $100 each. Jacob Sweigart, Sherman LeBlond, Cyrus S. Petry, Charles M. Drake and Alvie V. Kiser.

Central Wire & Iron Company, Cleveland; change of name to McLaren Iron Works Company. Guy M. McLaren, president; Archibald McLaren, secretary.

Carroll Lock Company, Dayton; locks, furniture, builders' hardware; $50,000, 500 shares of $100 each. Thomas Carroll, W. M. Carroll, C. E. Carroll, George V. Naureth and George W. John.

Jones Machinery & Glass Company, Columbus; window and other glass products; $14,000, 140 shares of $100. Walter A. Jones, J. G. Sayer, J. B. Wright, F. O. Levering and R. J. Odell.

Champion Register Company, Cleveland; increase of capital stock from $50,000 to $100,000. O. C. Ringle, president; Charles F. Bruggemeier, secretary.

Big Five Coal Company, St. Clairsville, increased capital $200,000 to $300,000. Samuel Pursglove, Sr., president; T. W. Pursglove, secretary.

Master Builders Company, Cleveland; increased capital $25,000 to $50,000. Conn E. Newman, president, S. W. Fleishiem, secretary.

West Virginia.

United States Coal and Iron Reclaiming Company; $150,000; reclaiming coal, slack by process of briquetting; small iron and steel scrap; general manufacturing and mercantile business; principal office, Detroit, Mich. Charles G. Alton, Hartwell, Ohio; Harry G. Myers, 506 Second avenue, Detroit, Mich.; Joseph M. Douthett, 5440 Center avenue, Pittsburgh, Pa.; Albert E. White, Ann Arbor, Mich.; Harry W. Hutchins, Hartwell, Ohio.

The Bellepoint Water Works Company, $10,000; construct, operate water works system near the town of Bellepoint, W. Va.; principal office, Beliepoint, W. Va. James H. Miller, Hinton, W. Va.; J. A. Woodrum, Ben D. Keller, C. L. Miller, D. A. Halstead, Bellepoint, W. Va.

Maxim Tri-Car Manufacturing Com-

KNOX PRESSED and WELDED STEEL COMPANY . . .

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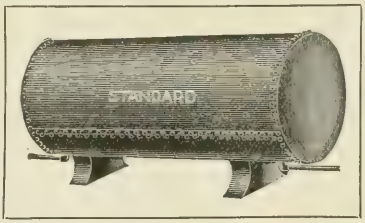
Sole manufacturers of Knox Patented Water Cooled Ports, Doors and Door Frames for Open Hearth Furnaces.



Standard Tanks for any purpose: Water, Air, Oil, Gas. We guarantee every tank absolutely tight and all openings plugged for shipment, keeping the tank clean and the tappings free from injury.

We are manufacturers of all kind of Plate Construction, Stand Pipes, Self Supporting Stacks, Accumulators and Air Receivers; also Freezing Tanks and Drip Pans for ice plants.

Write for price lists on Pneumatic Steel Tanks, Air Receivers and Oil Storage Tanks, which we carry in stock ready for immediate shipment. We can also quote you attractive prices on your special requirements.

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Hoisting and Reversing Engines

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AND BESSEMER PIG IRON

LEETONIA, - - - OHIO.

pany, Morgantown, to manufacture motor cars; $50,000. Harry R. Warfield, Joe S. Buchanan, John L. D. Street, H. L. Long and A. A. Hall, of Morgantown.

Blue Creek Development Company, Charleston, to develop oil lands in Kanawha county; $25,000. G. N. Hancock, George F. Coyle, Gwynn Nicholson, P. S. Mynes and J. L. Richardson, of Charleston.

Glenray Lumber Company, Glenray, Summers county, to develop timber lands in Summers and Greenbrier counties; $11,000. S. W. Wilson, I. M. Shannon, H. F. Strattan, Theodore L. Wilson, trustee, Clarion, Pa.; M. I. McCreight, B. M. Marlin, Dubois, Pa.; J. M. Young, Pittsburgh; J. V. Ritts, Butler, Pa.; W. J. Cassidy, Oakdale, Pa.; F. L. Harvey, Foxburg, Pa.; J. B. Henderson, Brookville, Pa.

Bellepoint Water Works Company, Bellepoint, Summers county, to operate a water works system; $5,000. James H. Miller, Hinton; J. A. Woodrum, Ben D. Keller, C. L. Miller and D. A. Halstead, Bellepoint.

Valley River Sand Company, Fairmont, to mine sand at Benton's Ferry; $80,000. A. D. Simon, S. E. Miller, E. M. Taylor, John S. Scott and E. C. Frame, Fairmont.

Turkey Foot Land & Lumber Company, Huntington, W. Va., with operations in Jackson, Ky., to mine coal and cut and manufacture lumber; $300,000. C. L. Ritter, H. T. Lovett, G. A. Koontz, M. A. Simms and E. E. Williams, all of Huntington.

Catawba Coal Company, of Connellsville, Pa., to mine coal in Winfield district, Marion county; $10,000. J. M. Herpick, J. J. Buttermore, George S. Connell, George R. Horpick and R. S. Matthews, all of Connellsville, Pa.

Mannington, Wadestown & Blacksville Railway Company, of Mannington; to construct electric railway from Mannington to Blacksville; $50,000. S. B. Harker, S. Clarke Steele, of Wana; Samuel Eakin, M. J. Garrison, of Wadestown; E. C. Martin, of Mannington.

Virginia Development Company, of Clarksburg; to operate for oil and gas, manufacture lampblack; $10,000. H. A. Harman, A. D. Harman, B. W. Bahyans, W. G. Terrell, H. B. Lee, all of Bluefield.

Larue-Swisher Lumber Company, of Point Pleasant; to manufacture lumber and develop timber lands; $5,000. Isiah W. Larue, Samuel W. Swisher, Delia Larue, Esther Swisher, H. R. Howard, all of Point Pleasant.

Schenck-Philadelphia Natural Gas Company, of Wheeling, to develop mineral oands, to operate for oil and gas; $1,500,000. Albert F. Schenck, Charles J. Schenck, George P. Fohnar, Willis H. Marshall and Allard L. Doepken, all of Wheeling.

Parkersburg Dock Company, conduct, maintain, carry on and operate docks, dry docks, floating docks and marine ways; principal office, Parkersburg; $50,000. B. S. Pope, Parkersburg, W. Va.; E. E. Pope, Parkersburg, W. Va.; J. C. McConnell, Parkersburg, W. Va.; J. M. Dressel, Belpre, Ohio; R. F. Sherwood, Parkersburg, W. Va.

[Additional charters on Page 135, of this issue.]

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Cast Iron Pipe & Foundry Company.
OPERATING 11 PLANTS.
WATER, GAS & CULVERT.
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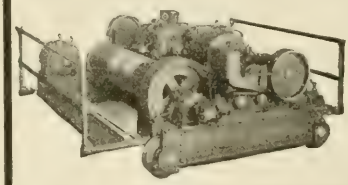
Bell and Spigot Specials. Flanged Specials. Flanged Pipe. Flexible Joint Pipe.

Here's a Mill Type Trolley used on several cranes shipped to the Pittsburgh district recently. Are you interested in what is new and best in crane design? Then look up our

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Testing Machines for all kinds of Tests
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Steel Works, Rolling Mills, Blast Furnaces, Hot Blast Stoves, Etc. Furnaces for All Purposes.
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CLEVELAND WAREHOUSE, Cleveland, O.
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Portland Seattle

District Offices
Birmingham Cleveland New York
Boston Denver Pittsburgh
Buffalo Detroit St. Louis
Chicago New Orleans St. Paul
Cincinnati Philadelphia

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Connellsville Mfg. & Mine Supply Company .....Connellsville, Pa.
Hall Steam Pump Co. .....Pittsburgh
Mesta Machine Co. .....Pittsburgh

AIR HOISTS.
Baird Machinery Co.....Pittsburgh
Northern Eng. Works ...Detroit, Mich.

AIR PRESSURE TANKS.
Meehan Boiler & Con. Co..Lowellville,O.
National Tube Company .....Pittsburgh
Riter-Conley Mfg. Co. .....Pittsburgh

ALUMINUM.
Aluminum Co. of America...Pittsburgh

ANGLE SHEARS.
Standard Bridge Tool Co.....Pittsburgh

ANNEALING BOXES.
Mesta Machine Co. .....Pittsburgh
Knox Pressed & Welded Steel Company .....Pittsburgh

ANNEALING BOXES, FURNACES AND OVENS.
Meehan Boiler & Con. Co .Lowellville,O.
United Eng. & Fdry Co.....Pittsburgh

ANNEALED TOOL AND DIE STEEL.
Wm. Jessop & Sons, Ltd.....New York

ARC LAMP RESISTANCES.
Cutler-Hammer Mfg. Co.....Milwaukee

ASH HANDLING MACHINERY.
C. O. Bartlett & Snow Co.....Cleveland
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

AUTOMATIC ENGINES.
Otis Elevator Company .....Pittsburgh

AXLES.
Carnegie Steel Company .....Pittsburgh

BAR STEEL.
Carnegie Steel Company .....Pittsburgh
Oswald, R. W. .....Pittsburgh

BARREL HANDLING MACHINERY
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

BATTERY CHARGING RHEOSTATS
Cutler-Hammer Mfg. Co.....Milwaukee

BEAMS.
Carnegie Steel Company .....Pittsburgh
Jones & Laughlin Steel Co....Pittsburgh
Riter-Conley Mfg. Co. .....Pittsburgh
W. N. Kratzer & Co. .....Pittsburgh

BELLS and GONGS (Seamless Steel.)
National Tube Company .....Pittsburgh

BELTING.

Baird Machinery Co.....Pittsburgh
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia
Oswald, R. W. .....Pittsburgh

BELT CONVEYORS.

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

BENDING MACHINES-HYDRAULIC

Chambersburg Engineering Company .....Chambersburg, Pa.
Standard Bridge Tool Co.....Pittsburgh

BENDING ROLLS.

Standard Bridge Tool Co.....Pittsburgh

BLAST FURNACE BRICK.

Stowe-Fuller Co. .....Cleveland, O.

BLAST FURNACES.

Riter-Conley Mfg. Co. .....Pittsburgh

BLOWER REGULATORS.

Cutler-Hammer Mfg. Co.....Milwaukee

BLOWING ENGINES.

Mackintosh, Hemphill & Co...Pittsburgh
Mesta Machine Company ....Pittsburgh
Southwark Foundry & Machine Company .....Philadelphia

BLAST FURNACE BRICK.

Kier Fire Brick Company ....Pittsburgh
Bickford Fire Brick Company..... .....Curwensville, Pa.

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H. J. Koontz .....Pittsburgh
Meehan Boiler & Con. Co..Lowellville,O.

BOILER FITTINGS.

National Tube Company .....Pittsburgh

BOILER TUBES.

National Tube Company .....Pittsburgh

BOILER SETTINGS.

Kier Fire Brick Company ....Pittsburgh
Bickford Fire Brick Company..... .....Curwensville, Pa.

BORING MACHINES.

Baird Machinery Co.....Pittsburgh

BRAKES (Electric.)

Cutler-Hammer Mfg. Co.....Milwaukee

BRAKE SOLENOIDS.

Cutler-Hammer Mfg. Co.....Milwaukee

BRASS AND BRONZE CASTINGS.

Mesta Machine Company ....Pittsburgh
United Eng. & Fdry Co.....Pittsburgh

BRAZING.

Linde Air Products Co., The..... .....Buffalo, N. Y.

BRIDGE AND STRUCTURAL WORK

Jones & Laughlin Steel Co....Pittsburgh
Meehan Boiler & Con. Co..Lowellville,O.
Riter-Conley Mfg. Co. .....Pittsburgh
W. N. Kratzer & Co. .....Pittsburgh

BRIDGE BUILDERS.

Riter-Conley Mfg. Co. .....Pittsburgh

BUCKETS.

Industrial Works .....Bay City, Mich.
Jeffrey Manufacturing Co..Columbus, O.

BUCKETS (Coal.)

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

BUCKETS (Ore.)

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

BUCKETS (Self Filling.)

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

BUILDINGS.

Riter-Conley Mfg. Co.....Pittsburgh

BUILDING BRICK.

West Va. Fire Clay Mfg. Co..Pittsburgh

CAR FORGINGS.

Connellsville Mfg. & Mine Supply Company .....Connellsville, Pa.
Phillips Mine & Mill Supply Company .....Pittsburgh

CAR HAULS.

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CARRIERS.

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CARS (Industrial).

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CASTINGS.

Chambersburg Engineering Company .....Chambersburg, Pa.
Connellsville Mfg. & Mine Supply Company .....Connellsville, Pa.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia
Mackintosh, Hemphill & Co...Pittsburgh
McLanahan Stone Machine Company .....Hollidaysburg, Pa.
Mesta Machine Company ....Pittsburgh
United Eng. & Fdry Co.....Pittsburgh
Wheeling Mould & Fdry. Co...Wheeling
Wm. Swindell & Bros. .....Pittsburgh

CASTINGS (Malleable.)

Jeffrey Manufacturing Co..Columbus, O.

CEMENT HANDLING MACHINERY

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CENTRAL CONDENSERS.

Mesta Machine Company ....Pittsburgh
Southwark Foundry & Machine Company .....Philadelphia

CHAIN BELTING.

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia
McLanahan Stone Machine Company .....Hollidaysburg, Pa.

CHAIN DRIVES.

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CHAIN HOISTS.

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CHAINS.

Jeffrey Manufacturing Co..Columbus, O.
Jones & Laughlin Steel Co....Pittsburgh
Link-Belt Company .....Philadelphia

CHAINS (Dodge, Ewart, Ley, Monobar, Maximum, etc.)

Link-Belt Company .....Philadelphia

CHAIN SLINGS.

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CHAIN GRATES.

American Stoker Co. .....New York

CHANNELS.

Carnegie Steel Company .....Pittsburgh
Jones & Laughlin Steel Co....Pittsburgh
W. N. Kratzer & Co. .....Pittsburgh

CHEMISTS.

Gulick-Henderson Co. .....Pittsburgh

CHIMNEYS (Steel)

Riter-Conley Mfg. Co.....Pittsburgh

CHROME BRICK.

Stowe-Fuller Co. .....Cleveland, O.

CIRCUIT BREAKERS.

Stowe-Fuller Co. .....Cleveland, O.

CLAPPER TYPE SWITCHES.

Cutler-Hammer Mfg. Co.....Milwaukee

CLAY MACHINERY.

Connellsville Mfg. & Mine Supply Company .....Connellsville, Pa.
Philips & McLaren Co. .....Pittsburgh

CLUTCH (Magnetic.)

Cutler-Hammer Mfg. Co.....Milwaukee

COAL.

Pittsburgh-Buffalo Co. .....Pittsburgh

COAL AND ASH HANDLING MACHINERY.

Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CUTTING.
(Sprues and Risers off Castings.)
Linde Air Products Co., The.....Buffalo, N. Y.

COAL CUTTERS.
Jeffrey Manufacturing Co..Columbus, O.

COAL DEALERS' SUPPLIES.
Standard Scale & Supply Co...Pittsburgh

COAL HAULING TIPPLES, MINING, WASHING & CRUSHING PLANTS.
C. O. Bartlett & Snow Co.....Cleveland
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

COAL AND ORE BRIDGE CONTROLLERS.
Cutler-Hammer Mfg. Co.....Milwaukee

COAL TIPPLES.
Riter-Conley Mfg. Co.....Pittsburgh

COCKS.
National Tube Company .....Pittsburgh

COCKS (Iron Body and "High-Duty-Metal.")
National Tube Company .....Pittsburgh

COKE.
Bessemer Coke Co.....Pittsburgh
McKeefrey & Co. .....Leetonia, O.
Pittsburgh-Buffalo Co. .....Pittsburgh
Shimer & Company, Inc.....Pittsburgh

COKE CHARGING CARS.
Jeffrey Manufacturing Co..Columbus, O.

COLD DRAWN STEEL SHAFTING AND SHAPES.
Jones & Laughlin Steel Co....Pittsburgh
Standard Gauge Steel Company .....Beaver Falls, Pa.

COLUMNS.
Jones & Laughlin Steel Co....Pittsburgh
Meehan Boiler & Con. Co..Lowellville, O.
W. N. Kratzer & Co. .....Pittsburgh

CONCRETE MIXERS.
Standard Scale & Supply Co...Pittsburgh

CONCRETE REINFORCEMENT.
The Consolidated Expanded Metal Co.'s .....Pittsburgh

CONDENSERS.
Mesta Machine Company ....Pittsburgh
Southwark Foundry & Machine Company .....Philadelphia

CONNECTING RODS.
Standard Gauge Steel Company .....Beaver Falls, Pa.

CONSULTING ENGINEERS.
Doubleday-Hill Electric Co..Pittsburgh.
Duff, Samuel E. .....Pittsburgh
Kennedy, Julian .....Pittsburgh
Laughlin, Alex & Co. .....Pittsburgh
Schlieper-Daae Company.....Pittsburgh
Standard Bridge Tool Co.....Pittsburgh
The S. R. Smythe Co. .....Pittsburgh
Wm. Swindell & Bros. .....Pittsburgh

CONTRACTORS.
Geo. J. Hagan .....Pittsburgh
Schlieper-Daae Company.....Pittsburgh
The S. R. Smythe Co. .....Pittsburgh
Wm. Swindell & Bros. .....Pittsburgh

CONTROLLERS (Electric.)
Cutler-Hammer Mfg. Co.....Milwaukee
Otis Elevator Company .....Pittsburgh
Doubleday-Hill Electric Co..Pittsburgh.

CONVEYORS AND ELEVATORS.
C. O. Bartlett & Snow Co.....Cleveland
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CONVEYORS (Belt.)
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CONVEYORS (Flight.)
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CONVEYORS (Screw.)
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CONVEYING MACHINERY.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CORRUGATED IRON.
McCollough Iron Co..Wilmington, Del.

COUPLINGS.
National Tube Company .....Pittsburgh

COUPLINGS (Magnetic.)
Cutler-Hammer Mfg. Co.....Milwaukee

COUPLINGS (Wrought.)
National Tube Company .....Pittsburgh
Central Tube Co. .....Pittsburgh

CRANES.
Northern Eng. Works ...Detroit, Mich.

CRANE CONTROLLERS.
Cutler-Hammer Mfg. Co.....Milwaukee

CRANES—LOCOMOTIVE.
Brown Hoisting Mach. Co...Cleveland
H. J. Koontz .....Pittsburgh
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CRANES & HOISTING MACHINERY
Baird Machinery Co.....Pittsburgh
H. J. Koontz .....Pittsburgh
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia
Northern Eng. Works ...Detroit, Mich.

CRANK SHAFTS.
Standard Gauge Steel Company .....Beaver Falls, Pa.

CRANE UNLOADERS.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

CRUCIBLE STEEL.
Wm. Jessop & Sons, Ltd.....New York

CRUCIBLE STEEL MELTING FURNACES.
Wm. Swindell & Bros. .....Pittsburgh

CUPOLA.
Northern Eng. Works ...Detroit, Mich.
Riter-Conley Mfg. Co. .....Pittsburgh

CUPOLA BLOCKS.
Dover Fire Brick Co.....Cleveland, O.
Stowe-Fuller Co. .....Cleveland, O.
United Fire Brick Co...Uniontown, Pa.
West Va. Fire Clay Mfg. Co..Pittsburgh

CUPOLA LININGS.
Dover Fire Brick Co.....Cleveland, O.
Stowe-Fuller Co. ....Cleveland, O.

CYLINDERS.
Mesta Machine Company ....Pittsburgh

DIE BLOCKS.
Heppenstall Forge & Knife Company .....Pittsburgh

DIRECT MOTOR DRIVES.
Crocker-Wheeler Co.....Ampere, N. J.

DISC BRAKES.
Cutler-Hammer Mfg. Co.....Milwaukee

DITCHERS.
Jeffrey Manufacturing Co..Columbus, O.

DIGESTERS.
Riter-Conley Mfg. Co.....Pittsburgh

DREDGE CHAINS.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

DREDGES.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

DREDGING MACHINERY.
C. O. Bartlett & Snow Co.....Cleveland
Jeffrey Manufacturing Co..Columbus, O.

DRILLS.
Jeffrey Manufacturing Co..Columbus, O.

DRILLS FOR COAL MINES.
Jeffrey Manufacturing Co..Columbus, O.

DRIVE CHAINS.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

DRIVE WELL POINTS AND WELL SUPPLIES.
National Tube Company .....Pittsburgh

DOVETAIL ROLLS.
The Heinle Company .....Pittsburgh

DROP HAMMERS.
Chambersburg Engineering Company .....Chambersburg, Pa.

DYNAMO BRUSHES.
Cutler-Hammer Mfg. Co.....Milwaukee
Doubleday-Hill Electric Co..Pittsburgh.

DYNAMOS AND MOTORS.
Crocker-Wheeler Co.....Ampere, N. J.
H. J. Koontz .....Pittsburgh
Doubleday-Hill Electric Co..Pittsburgh.

ELECTRIC HOISTS.
Northern Eng. Works ...Detroit, Mich.
Otis Elevator Company .....Pittsburgh

ELECTRIC LIGHTING MACHIN'RY
Crocker-Wheeler Co.....Ampere, N. J.
Southwark Foundry & Machine Company .....Philadelphia

ELECTRICAL REPAIRS.
Doubleday-Hill Electric Co..Pittsburgh.

ELECTRIC LAMPS (Arc and Incandescent)
Doubleday-Hill Electric Co..Pittsburgh.

ELECTRIC LOCOMOTIVES.
Jeffrey Manufacturing Co..Columbus, O.
Northern Eng. Works ...Detroit, Mich.

ELECTRICAL SUPPLIES.
Doubleday-Hill Electric Company .... Pittsburgh, Pa.

ELEVATOR CONTROLLERS AND ACCESSORIES.
Cutler-Hammer Mfg. Co.....Milwaukee

ELEVATORS.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia
Northern Eng. Works ...Detroit, Mich.
Otis Elevator Company .....Pittsburgh

EMERY & CORUNDUM WHEELS.
Standard Scale & Supply Co...Pittsburgh

ENGINEERS.
Chambersburg Engineering Company .....Chambersburg, Pa.
Chester & Fleming .....Pittsburgh, Pa.
Duff, Samuel E. .....Pittsburgh
G. W. McClure Son & Co....Pittsburgh
Jeffrey Manufacturing Co..Columbus, O.
Kennedy, Julian .....Pittsburgh
Laughlin, Alex & Co. .....Pittsburgh
Link-Belt Company .....Philadelphia
Morgan Construction Company..... .....Worcester, Mass.
The S. R. Smythe Co. .....Pittsburgh
Schlieper-Daae Company.....Pittsburgh
United Eng. & Fdry Co.....Pittsburgh
Wm. Swindell & Bros. .....Pittsburgh

ENGINEERS—INSPECTING.
Gulick-Henderson Co. .....Pittsburgh

ENGINEERS—LABORATORY.
Gulick-Henderson Co. .....Pittsburgh

ENGINEERS (Mechanical.)
Schlieper-Daae Company.....Pittsburgh
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

ENGINES.
Oswald, R. W. .....Pittsburgh
Otis Elevator Company .....Pittsburgh

ENGINES (Steam.)
Connellsville Mfg. & Mine Supply Company .....Connellsville, Pa.
H. J. Koontz .....Pittsburgh
Mackintosh, Hemphill & Co...Pittsburgh
Mesta Machine Company ....Pittsburgh
Southwark Foundry & Machine Company .....Philadelphia

EQUALIZING GEARS.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

EXPANDED METAL.
The Consolidated Expanded Metal Co.'s .....Pittsburgh

EXPANSION METAL.
National Tube Company .....Pittsburgh

FAN REGULATORS.
Cutler-Hammer Mfg. Co.....Milwaukee

FEED WATER HEATERS, FILTERS AND PURIFIERS.
H. J. Koontz .....Pittsburgh

FIELD REGULATORS.
Cutler-Hammer Mfg. Co.....Milwaukee

FIRE ARCH BRICK.
Dover Fire Brick Co.....Cleveland, O.
Kier Fire Brick Company ....Pittsburgh
Bickford Fire Brick Company..... .....Curwensville, Pa.
Stowe-Fuller Co. .....Cleveland, O.

FIRE BRICK AND CLAY.
Bickford Fire Brick Company..... .....Curwensville, Pa.
Clearfield Fire Brick Co...Clearfield, Pa.
Dover Fire Brick Co.....Cleveland, O.
Kier Fire Brick Company ....Pittsburgh
Pittsburgh-Buffalo Co. .....Pittsburgh
Jos. Soisson Brick Co..Connellsville, Pa.
Sandy Ridge Fire Brick Company .....Sandy Ridge, Pa.
Stowe-Fuller Co. .....Cleveland, O.
United Fire Brick Co...Uniontown, Pa.
West Va. Fire Clay Mfg. Co..Pittsburgh

FIRE ESCAPES.
W. N. Kratzer & Co. .....Pittsburgh

FIRE PROOFING.
W. N. Kratzer & Co. .....Pittsburgh

FIRE PUMP STARTERS.
Cutler-Hammer Mfg. Co.....Milwaukee

FITTINGS.
National Tube Company .....Pittsburgh

FITTINGS (Malleable and Cast Iron.)
National Tube Company .....Pittsburgh

FLAG STAFFS.
National Tube Company .....Pittsburgh

FLANGES (Cast and Malleable.)
National Tube Company .....Pittsburgh
FLATS.
Standard Gauge Steel Company .....Beaver Falls, Pa.

FLANGING CLAMPS.
Chambersburg Engineering Company .....Chambersburg, Pa.
Standard Bridge Tool Co.....Pittsburgh
FLANGING.
Knox Pressed & Welded Steel Company .....Pittsburgh

FINISHED MACHINE KEYS.
Standard Gauge Steel Company .....Beaver Falls, Pa.

FLIGHT CONVEYORS.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

FLOAT SWITCHES.
Cutler-Hammer Mfg. Co.....Milwaukee

FORGE AND FURNACE LININGS.
Bickford Fire Brick Company..... .....Curwensville, Pa.

FORGINGS.
Carnegie Steel Company .....Pittsburgh
Heppenstall Forge & Knife Company .....Pittsburgh
Jeffrey Manufacturing Co..Columbus, O.
Mesta Machine Company ....Pittsburgh
W. N. Kratzer & Co. .....Pittsburgh

FORGINGS PRESSES.
Chambersburg Engineering Company .....Chambersburg, Pa.
Mesta Machine Co. .....Pittsburgh
United Eng. & Fdry Co.....Pittsburgh

FOUNDRY EQUIPMENTS.
Baird Machinery Co.....Pittsburgh
Meehan Boiler & Con. Co..Lowellville,O.

FOUNDRY FIRE BRICK.
Bickford Fire Brick Company..... .....Curwensville, Pa.
Dover Fire Brick Co.....Cleveland, O.
Kier Fire Brick Company ....Pittsburgh
Stowe-Fuller Co. .....Cleveland, O.

FRICTION CLUTCHES.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

FURNACES.
American Stoker Co. .....New York

FURNACE BUILDERS.
Laughlin, Alex & Co. .....Pittsburgh
Geo. J. Hagan .....Pittsburgh
G. W. McClure Son & Co....Pittsburgh
Kennedy, Julian .....Pittsburgh
Morgan Construction Company..... .....Worcester, Mass.
Schlieper-Daae Company.....Pittsburgh
The S. R. Smythe Co. .....Pittsburgh
Wm. Swindell & Bros. .....Pittsburgh

GALVANIZED SHEETS.
McCollough Iron Co..Wilmington, Del.

GAS AND GASOLINE ENGINES.
Standard Scale & Supply Co...Pittsburgh

GAS-CLEANING PLANTS.
The Smith Gas Power Co..Lexington, O.

GAS ENGINES.
Mesta Machine Company ....Pittsburgh

GAS HOLDERS.
Riter-Conley Mfg. Co.....Pittsburgh

GAS PRODUCERS.
Geo. J. Hagan .....Pittsburgh
Laughlin, Alex & Co. .....Pittsburgh.
Morgan Construction Company.....
.....Worcester, Mass.
Riter-Conley Mfg. Co. .....Pittsburgh
Schlieper-Dave Company .....Pittsburgh
The S. R. Smythe Co. .....Pittsburgh
The Smith Gas Power Co..Lexington, O.
Wm. Swindell & Bros. .....Pittsburgh

GAS MACHINERY.
Riter-Conley Mfg. Co.....Pittsburgh

GAS WORKS CONSTRUCTION.
Riter-Conley Mfg. Co.....Pittsburgh

GATE VALVES.
National Tube Company .....Pittsburgh

GEARING (Bevel, Mitre, Spur, etc.)
Link-Belt Company .....Philadelphia

GEARS.
Jeffrey Manufacturing Co..Columbus, O.
Mesta Machine Company ....Pittsburgh

GENERATORS.
Crocker-Wheeler Co.....Ampere, N. J.
Doubleday-Hill Electric Co..Pittsburgh.

GERMAN SILVER
Shimer & Company, Inc.....Pittsburgh

GIRDERS.
DeMoines Bridge & Iron Company
..... DeMoines, Ia.
Jones & Laughlin Steel Co....Pittsburgh
Meehan Boiler & Con. Co..Lowellville,O.
W. N. Kratzer & Co. .....Pittsburgh

GLOBE VALVES.
National Tube Company .....Pittsburgh

GRAB BUCKETS.
Jeffrey Manufacturing Co..Columbus, O.

GRATES.
American Stoker Co. .....New York

GRAIN TANKS.
Standard Steel Tank & Manufacturing Company .....Pittsburgh, Pa.

GRAIN ELEVATORS AND STORAGE TANKS.
Riter-Conley Mfg. Co.....Pittsburgh

GROUND FIRE CLAY.
West Va. Fire Clay Mfg. Co..Pittsburgh

GUILLOTINE SHEARS.
Standard Bridge Tool Co.....Pittsburgh

HEAD FRAMES.
Riter-Conley Mfg. Co. .....Pittsburgh

HEADS (Flanged and Dished Boiler.)
Riter-Conley Mfg. Co.....Pittsburgh

HIGH SPEED PUNCHES.
Standard Bridge Tool Co.....Pittsburgh

HOISTING ENGINES.
Otis Elevator Company .....Pittsburgh

HORIZONTAL DRILLS.
Baird Machinery Co.....Pittsburgh

HORIZONTAL PUNCHES.
Standard Bridge Tool Co.....Pittsburgh

HOT BLAST STOVE BRICK.
Stowe-Fuller Co. .....Cleveland, O.

HOT BLAST STOVES.
Bickford Fire Brick Company.....
.....Curwensville, Pa.
G. W. McClure Son & Co....Pittsburgh

HOT METAL CARS.
Meehan Boiler & Con. Co..Lowellville,O.

HYDRAULIC ENGINEERS.
Chester & Fleming .....Pittsburgh, Pa.

HYDRAULIC MACHINERY.
Baird Machinery Co.....Pittsburgh
Chambersburg Engineering Company .....Chambersburg, Pa.
Mesta Machine Company ....Pittsburgh

HYDRAULIC PUMPS.
Chambersburg Engineering Company .....Chambersburg, Pa.

HYDRAULIC VALVES AND FITTINGS.
Chambersburg Engineering Company .....Chambersburg, Pa.
National Tube Company .....Pittsburgh

INJECTORS—AUTOMATIC.
Penberthy Injector Co. ..Detroit, Mich.

ICE TOOLS.
Standard Scale & Supply Co...Pittsburgh

IGNITION BATTERY RHEOSTATS.
Cutler-Hammer Mfg. Co.....Milwaukee

INDUSTRIAL RAILWAYS.
Link-Belt Company .....Philadelphia

INSPECTION.
The Heinle Company .....Pittsburgh
Gulick-Henderson Co. .....Pittsburgh

IRON AND STEEL BARS.
Jones & Laughlin Steel Co....Pittsburgh

IRON FENCING.
W. N. Kratzer & Co. .....Pittsburgh

IRON ROOFS AND BUILDINGS.
Riter-Conley Mfg. Co. .....Pittsburgh
W. N. Kratzer & Co. .....Pittsburgh

"KEWANEE" UNIONS & SPECIALTIES.
National Tube Company .....Pittsburgh

KILNS (Cement).
Riter-Conley Mfg. Co.....Pittsburgh

LADLES.
Knox Pressed & Welded Steel Company .....Pittsburgh
Meehan Boiler & Con. Co..Lowellville,O.

LADLE BRICK.
West Va. Fire Clay Mfg. Co..Pittsburgh

LADLE LININGS.
Dover Fire Brick Co.....Cleveland, O.
Stowe-Fuller Co. .....Cleveland, O.

LADLES (Steel).
Riter-Conley Mfg. Co.....Pittsburgh

LATHES.
Baird Machinery Co.....Pittsburgh

LIFTING MAGNETS.
Cutler-Hammer Mfg. Co.....Milwaukee

LIMIT SWITCHES.
Cutler-Hammer Mfg. Co.....Milwaukee

LINK-BELTING.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

LOCOMOTIVE CRANES.
Industrial Works .....Bay City, Mich.
Link-Belt Company .....Philadelphia

LOCOMOTIVE FIRE BRICK
Bickford Fire Brick Company.....
.....Curwensville, Pa.
Dover Fire Brick Co.....Cleveland, O.
Stowe-Fuller Co. .....Cleveland, O.

MACHINE BOLTS.
Riter-Conley Mfg. Co. .....Pittsburgh

MACHINE RACK.
Standard Gauge Steel Company
.....Beaver Falls, Pa.

MACHINE TOOLS.
Baird Machinery Co.....Pittsburgh
H. J. Koontz .....Pittsburgh.

MACHINERY CASTINGS.
Wm. Swindell & Bros. .....Pittsburgh

MAGNESIA BRICK.
Stowe-Fuller Co. .....Cleveland, O.

MAGNESITE.
Stowe-Fuller Co. .....Cleveland, O.

MAGNETIC CLUTCHES.
Cutler-Hammer Mfg. Co.....Milwaukee

MAGNETIC SEPARATORS.
Cutler-Hammer Mfg. Co.....Milwaukee

MAGNETIC (Electric Lifting.)
Cutler-Hammer Mfg. Co.....Milwaukee

MALLEABLE CASTINGS.
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

MASTER SWITCHES.
Cutler-Hammer Mfg. Co.....Milwaukee

MAXIMUM SILENT CHAIN.
Link-Belt Company .....Philadelphia

METAL CONFORMATION.
The Heinle Company .....Pittsburgh

METALLURGISTTS.
Gulick-Henderson Co. .....Pittsburgh

MILLING MACHINES.
Baird Machinery Co.....Pittsburgh
Standard Bridge Tool Co.....Pittsburgh

MINE FANS.
Jeffrey Manufacturing Co..Columbus, O.

MINING MACHINERY & SUPPLIES.
C. O. Bartlett & Snow Co.....Cleveland
Connellsville Mfg. & Mine Supply Company .....Connellsville, Pa.
Doubleday-Hill Electric Co..Pittsburgh.
Jeffrey Manufacturing Co..Columbus, O.
Meehan Boiler & Con. Co..Lowellville,O.
Phillips Mine & Mill Supply Company .....Pittsburgh

MOTORS.
Crocker-Wheeler Co.....Ampere, N. J.
Doubleday-Hill Electric Co..Pittsburgh.

MONEL METAL.
Shimer & Company, Inc.....Pittsburgh.

MULTIPLE PUNCHES.
Standard Bridge Tool Co.....Pittsburgh

OIL REFINERY WORK.
Standard Steel Tank & Manufacturing Company .....Pittsburgh, Pa

OIL REFINING PLANTS.
Riter-Conley Mfg. Co.....Pittsburgh

ORE CARS.
Jeffrey Manufacturing Co..Columbus, O.

ORE CONCENTRATORS & SEPARATORS.
McLanahan Stone Machine Company .....Hollidaysburg, Pa.

ORE HANDLING MACHINERY.
C. O. Bartlett & Snow Co.....Cleveland
Jeffrey Manufacturing Co..Columbus, O.
Link-Belt Company .....Philadelphia

OXYGEN.
The Linde Air Products Co....Buffalo

OXY-ACETYLENE WELDING AND CUTTING APPARATUS.
The Linde Air Products Co....Buffalo

PATENTS.
J. M. Nesbit .....Pittsburgh
Siggers & Siggers..Washington, D. C.

PAVING BRICK.
West Va. Fire Clay Mfg. Co..Pittsburgh

PAVING BLOCK.
West Va. Fire Clay Mfg. Co..Pittsburgh

"PECK" CARRIERS.
Link-Belt Company .....Philadelphia

PENSTOCKS.
Riter-Conley Mfg. Co. .....Pittsburgh
Standard Steel Tank & Manufacturing Company .....Pittsburgh, Pa.
Knox Pressed & Welded Steel Company .....Pittsburgh

PHOSPHOR BRONZE.
Shimer & Company, Inc.....Pittsburgh

PIG METALS (ORES, etc.)
McKeefrey & Co. ....Leetonia, O.

PIG IRON.
Shimer & Company, Inc.....Pittsburgh

PILLAR CRANES.
Industrial Works .....Bay City, Mich.
Northern Eng. Works ...Detroit, Mich.

PIPE AND PIPE FITTINGS.
Central Tube Co. .....Pittsburgh
National Tube Company .....Pittsburgh
U. S. Cast Iron & Pipe Foundry Company .....Scottdale, Pa.

PIPE COILS.
National Tube Company .....Pittsburgh

PIPES (Riveted Steel).
Riter-Conley Mfg. Co.....Pittsburgh

PLATE WORK.
Knox Pressed & Welded Steel Company ....Pittsburgh
Meehan Boiler & Con. Co..Lowellville,O.
Riter-Conley Mfg. Co. .....Pittsburgh
Standard Steel Tank & Manufacturing Company .....Pittsburgh, Pa.

POLES (Tubing Steel.)
National Tube Company .....Pittsburgh

POWER PLANTS.
Doubleday-Hill Electric Co..Pittsburgh.
Mesta Machine Company ....Pittsburgh

PNEUMATIC TOOLS.
Connellsville Mfg. & Mine Supply Company .....Connellsville, Pa.
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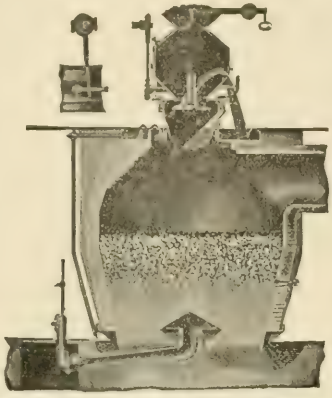

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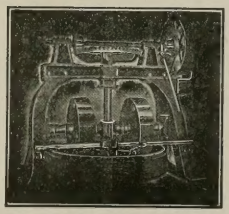

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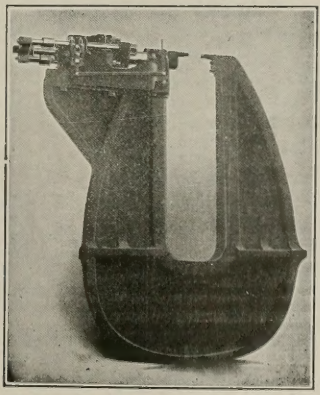

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